

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

The Great Sea Flight.

In writing of such a magnificent feat—for it is a magnificent feat, in spite of the unfortunate failure which prevented the full accomplishment of the task undertaken—as that achieved by the combination of machine, engine and pilot represented by the Sopwith seaplane, Green engine and Mr. Hawker in the Round Britain Race for the *Daily Mail* prize of £5,000, it is more than a little difficult to know what to say. On the one hand, to do adequate justice to such a performance entails almost of necessity a lapse into fulsome compliment, which is as distasteful to those concerned to read as to us to pen. On the other, to dismiss it in a few lines of common-place platitudes is to utterly fail to do justice to the subject. But so epoch-making an occurrence can hardly be allowed to pass without due comment, if only because it constitutes in itself one of the milestones in the progress of flight, and in particular in the story of British aviation. Moreover, it possesses a distinct character of its own so far as British history is concerned, in that it at once marks the point at which the native designer and constructor of the aeroplane and the British engine-builder have beyond all doubt or question overtaken—if not actually passed—their rivals from abroad. Even so recently as a week ago, there would have been found

many, whose interest in aviation is of an active character, to have said that there is not an aviation motor designed or produced within the British Isles which is the equal of the best-known foreign engines. To-day there is for answer the concrete record of this wonderful flight accomplished by a British engine! And not only accomplished, but accomplished to all intents and purposes without the least hitch or trouble! True, according to the newspaper reports of the flight, Mr. Hawker's descent at Seaham Harbour was due to engine trouble, and that he fell somewhat behind his intended schedule on the second day was ascribed to a similar course, while the same trouble was reported on Wednesday, when Mr. Hawker's flight met such an unfortunate termination, but when we come to examine the matter in detail we find that this so-called "engine trouble" was simply the consequence of loss of water due to the burning through of rubber connections by a hot exhaust pipe, and was thus not due to any sort of trouble in the motor itself. Therefore, we maintain that we are strictly correct in saying that there was no engine trouble from beginning to end, and our Editorial remarks with regard to the Green motor, published in last week's issue of *FLIGHT*, have been shown to be fully justified in the result.

What this means to the British industry needs little perspicacity to realise. No longer need there be any doubt as to the ability of the British engine designer to produce a motor which is fully the equal of the best of those which have their origin in other countries. It might be argued that as one swallow does not make a summer, so one engine does not make an industry, but already there are several British engines which in the not far-distant future will be heard of, and there can be no doubt that the success of this Green motor will produce a sort of reflex effect on the whole industry by concentrating attention on the actual achievement, and thus engendering a spirit of further emulation which cannot fail of producing the very best results. We feel that we should be doing less than is due to the makers of the Green engine did we not tender them not only our congratulations upon their really wonderful motor, but thank them at the same time, in the name of the whole British aerial movement, for the service they have rendered to it by thus directing attention to the possibilities of the native industry.

Then, what is to be said of the Sopwith machine—a machine designed and built out of the lessons of

experience gained by a British constructor, who is also a skilled and practised pilot? No praise that can be awarded is too high for it. It was no ordinary flight that had to be undertaken, and even though the conditions of wind and weather were more favourable than is usually the case around the coasts of these islands, the records of the flight show that it was not in any sense a "walk-over," but, on the contrary, was an exceedingly strenuous journey. When we read of the pilot's experience in passing down the Caledonian Canal, how he encountered wind-gusts that often dropped him suddenly from 2,000 ft. almost to water level, we cannot fail to admire the excellence of design and admirable construction. And that the end should come through an absurdly small slip of the pilot's foot off the steering bar! The work of the machine had, however, been splendidly proved by its previous thousand miles of being buffeted about, sufficient to have put any less able construction *hors de combat* at an early period of the flight. Thus, in spite of the failure to secure the full achievement, we feel justified in claiming that in the Sopwith seaplane this country possesses a design which is certainly not surpassed by that of any other craft abroad.

If we have left until last our tribute to the nerve and skill of Mr. Hawker, it is because we feel so deeply with him in the disappointment that must be his when he realises how nearly he succeeded, and how hard was the luck which deprived him of the success he had done so much to deserve. Indeed, it is difficult to know which to admire most, the wonderful skill of the man or the dogged pluck and pertinacity with which he renewed and stuck to his enterprise when many would have given up. We know enough, even at this early stage, when the full story of the flight has not been told, to realise that the journey down the Caledonian Canal must have been one of considerable danger, to say nothing of discomfort. And it was not only over this section of the journey that he encountered conditions sufficiently adverse to have given pause to a pilot of lesser calibre than Mr. Hawker. That he continued—and continued until he was almost within sight of success—is sufficient, if anything more than his previous record were needed, to place Mr.

Hawker right in the front rank of pilots. To him, equally with the constructors of the machine and the motor, we at once extend our heartiest congratulations on the grand performance of the combination, and our sympathy with them in the heart-breaking ill-fortune they sustained practically at the eleventh hour of their attempt.

Of the value of this glorious failure to aviation it is hardly possible to speak with certitude at the moment, but this much is sure, that it has concentrated the attention of the whole world on the movement. There is probably not a single newspaper the world over which has not contained at least some brief reference to the progress of the flight. What the cumulative effect of this on the movement must be it is impossible to calculate even approximately at present, but it must be something very considerable. On this count, therefore, it may be said that an enormous effect for good must be produced, and for this it would be graceless if we ignored the influence of the *Daily Mail*. In the first place, had it not been for the public-spirited munificence of Lord Northcliffe, the contest could not have taken place at all. In the second, it is more than doubtful if, supposing that the same prize had been offered by a private individual without the powerful influence of a great newspaper behind it, the event would have obtained a tithe of the publicity which has been accorded to it.

Finally, and in some respects this is the most pleasing aspect of the whole thing, we look forward to a vast increase of public interest in the problem which is uppermost in the minds of all who realise the enormous potentialities of air-craft—that of aerial defence. Once more it has been demonstrated in convincing manner that the aeroplane is not an unpractical toy, but a very practical proposition indeed. It is only by constantly keeping before the eyes of the public the outstanding fact that aircraft are as much a part of our defence system as battle-ships or submarines that the necessary volume of opinion can be created which will force the Government to keep time with our possible rivals in the air. And in no better way can this be done than through the medium of flights such as that which has now passed into history.

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SIDNEY V. SIPPE.

BRITISH PILOT.

THE value of a thorough apprenticeship in the art of flying is well exemplified in the case of Sidney V. Sippe, whose portrait appears in our series this week, for it will be remembered the course of instruction which he went through at the Avro School at Brooklands was in no sense of the word hurried. When the time came for him to fly for his certificate he carried out the tests in a way which showed that he had thoroughly mastered the art, and to those who knew, it was not surprising that, shortly after, he was selected by Commander Schwann to pilot the Avro hydro-aeroplane with which tests were being conducted privately over the Cavendish Dock at Barrow, where Commander Schwann's ship, the "Hermione," was stationed as a tender to the ill-fated rigid dirigible for the Navy. Although the aeroplane had seen a good deal of service and was only fitted with a 35 h.p. engine, Sippe during April of last year carried out a great number of flights which resulted in the accumulation of a quantity of valuable information regarding the size and shape of floats suitable for such work. In the next month Sippe was engaged by the Hanriot firm in England, and went over to Rheims, where he proved that he was equally at home on a monoplane as on a "two-decker" machine,

and our readers will remember that in FLIGHT for December 28th last year, he recounted some of his experiences when testing a 100 h.p. Hanriot monoplane built for the French Gordon-Bennett Trials. He attempted to fly on a monoplane from Rheims to Brooklands, but after making an excellent course, getting to Abbeville in a couple of hours, engine trouble caused the abandonment of the trip. In August he shared with Bielovucic the responsibility of taking the Hanriot machines through the British Military Trials. That task completed, Sippe joined the Bristol Co., and one of his first duties was to go to Turin in order to carry out the delivery tests of some Bristol monoplanes for the Italian Government. He then proceeded to Milan to superintend the construction of fourteen 80 h.p. Bristol monoplanes being built to the order of the Italian War Office. He afterwards took part in the Italian Military Aeroplane Competition, in which one of the tests was a cross-country flight of just on 200 miles. Since returning from Italy he has been doing test work and school instruction at Salisbury, the former including the passing of several Bristol monoplanes for Roumania through their paces.

"THE HAWK."

AUGUST 30, 1913.

FLIGHT

MEN OF MOMENT IN THE WORLD OF FLIGHT.
British Pilot.



MR. SIDNEY V. SIPPE.

FLYING AT HENDON.

BOTH events down on the programme, a speed handicap and a cross-country handicap, were got through under by no means ideal conditions on the occasion of the Colindale Meeting at Hendon last Saturday. The heavy showers of the morning were not, fortunately, repeated in the afternoon, but there was, nevertheless, a gusty wind which got the best of some of the pilots on one or two occasions.

A very welcome visitor during the afternoon was Gordon Bell, now quite recovered from his nasty accident at Brooklands some little time back. All were very pleased to see him looking so well, and in his usual high spirits. Late in the evening he went up as passenger with G. W. Beatty in the latter's Wright biplane, and thoroughly enjoyed his flight—the first, we believe, since his mishap. At about 4 o'clock, just before the cross-country handicap—the first event—was held, a Blériot monoplane flew over the aerodrome some three or four thousand feet up. It was announced as B. C. Hucks', but the monoplane looked like that of Gustav Hamel's to the writer. However, when over the aerodrome the pilot made a few spirals à la Hamel, and returned from whence he came. The cross-country handicap was flown over four laps of the Bittacy Hill course, and brought forth seven starters. These were: W. Birchenough (12 mins. 28 secs.) and R. Carr (11 mins. 13 secs.) on Grahame-White biplanes; Marcus D. Manton (10 mins. 13 secs.) on the new G.-W. biplane; Geo. W. Beatty (6 mins. 26 secs.) on the Gyro-Wright; Pierre Verrier (3 mins. 43 secs.) on the Aircraft-Maurice Farman; E. Marty (48 secs.) on the 50-h.p. Morane-Saulnier, and R. Slack (scratch) on a similar machine. Birchenough, Carr and Beatty dropped out of the race during its early stages, and Marty flew out of his course somewhat, so it was left for Manton, Verrier and Slack to fight it out between them. On the homeward journey it was observed that there would be a close finish between Manton and Slack, the latter having passed Verrier, and on reaching No. 5 pylon Manton was overtaken by Slack, who finished first—although ignorant of the fact at the time—2½ secs. in front. Verrier came in third, 53 secs. behind Manton. The speed handicap was flown in two heats of six laps each, and a final heat of eight

laps. The first heat was made up of W. Birchenough (5 mins. 56 secs.) and R. Carr (5 mins. 26 secs.) on G.-W. buses, E. Marty (7 secs.) on the Morane-Saulnier, and Lieut. Porte (scratch) on the 110 h.p. Deperdussin. The Heavenly Twins had completed several laps before the two monoplanes started, and the difference in speed between the former and the latter was very marked. Carr dropped a good bit behind, owing, no doubt, to backwash difficulties, and Lieut. Porte got level with Marty at the start and soon passed his rival, coming in a good first. Marty was second, 31 secs. behind, having passed Birchenough just before the finish. Birchenough was third, 6 secs. behind Marty. In the second heat Marcus D. Manton, on the new G.-W. bus, was the limit man (5 mins. 20 secs.), G. W. Beatty (3 mins. 25 secs.) on the Wright was next, Verrier (2 mins. 15 secs.) on the Maurice Farman, and R. Slack on the Morane-Saulnier at scratch completed the starters. Manton ran short of oil on his second lap and had to retire, while Slack also retired from the race with petrol trouble. Verrier beat Beatty by 14 secs., Beatty, as usual, flying low and close to the pylons. Although Beatty and Verrier retired during the final heat, a most spectacular race was provided by the two remaining entrants, Lieut. Porte and Marty. Both were close together during the latter part of the heat, which, coupled with the fact that they were flying at a speed of over 70 m.p.h., rendered the rounding the pylons hair-raising, to say the least. Lieut. Porte flew but a few feet from the ground, and once his lower wing tip actually touched earth. On the last lap he came level with Marty, and flew thus for some time, eventually passing him, and crossing the finish line 2 secs. in front. Once or twice it looked as if Marty would regain the lead, in fact it was the most thrilling finish seen at Hendon. In addition to the races, exhibition and passenger flights were made by Beatty, Carr, Manton, Marty, Noel and Verrier. Capt. Risk, R.F.C., also made flights on a Maurice Farman, and J. L. Hall came out on the 35 h.p. Caudron, late of the Temple school.

It was rumoured that Lieut. Porte was making his last appearance on his "Dep." at Hendon, but it is sincerely hoped that we have not yet seen the last of this fine combination of pilot and machine. The results of the cross-country and speed handicaps are as follows:—

Cross-Country Handicap. About 16 miles.

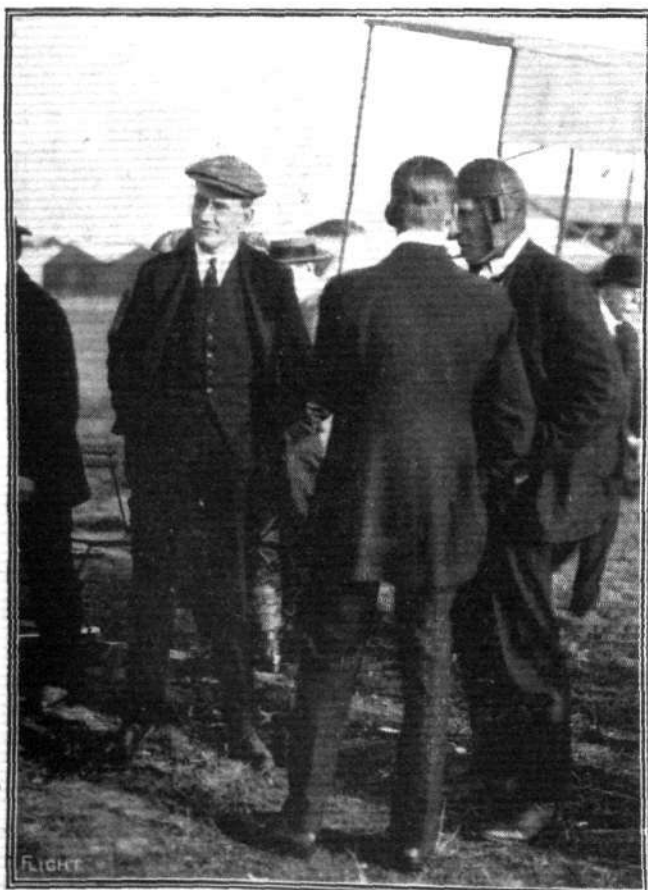
| | Start. | Handicap |
|--|---------|----------|
| | m. s. | m. s. |
| 1. R. Slack (80 h.p. Morane-Saulnier monoplane) | scratch | 27 37½ |
| 2. Marcus D. Manton (50 h.p. Grahame-White biplane) | 10 13 | 27 40 |
| 3. P. Verrier (70 h.p. Maurice Farman biplane) | 3 43 | 28 33 |

Speed Handicap. Final 8 laps.

| | | |
|---|---------|-------|
| 1. Lieut. Porte, R.N. (110 h.p. Deperdussin monoplane) | scratch | 13 54 |
| 2. E. Marty (50 h.p. Morane-Saulnier monoplane) | 0 32 | 13 56 |

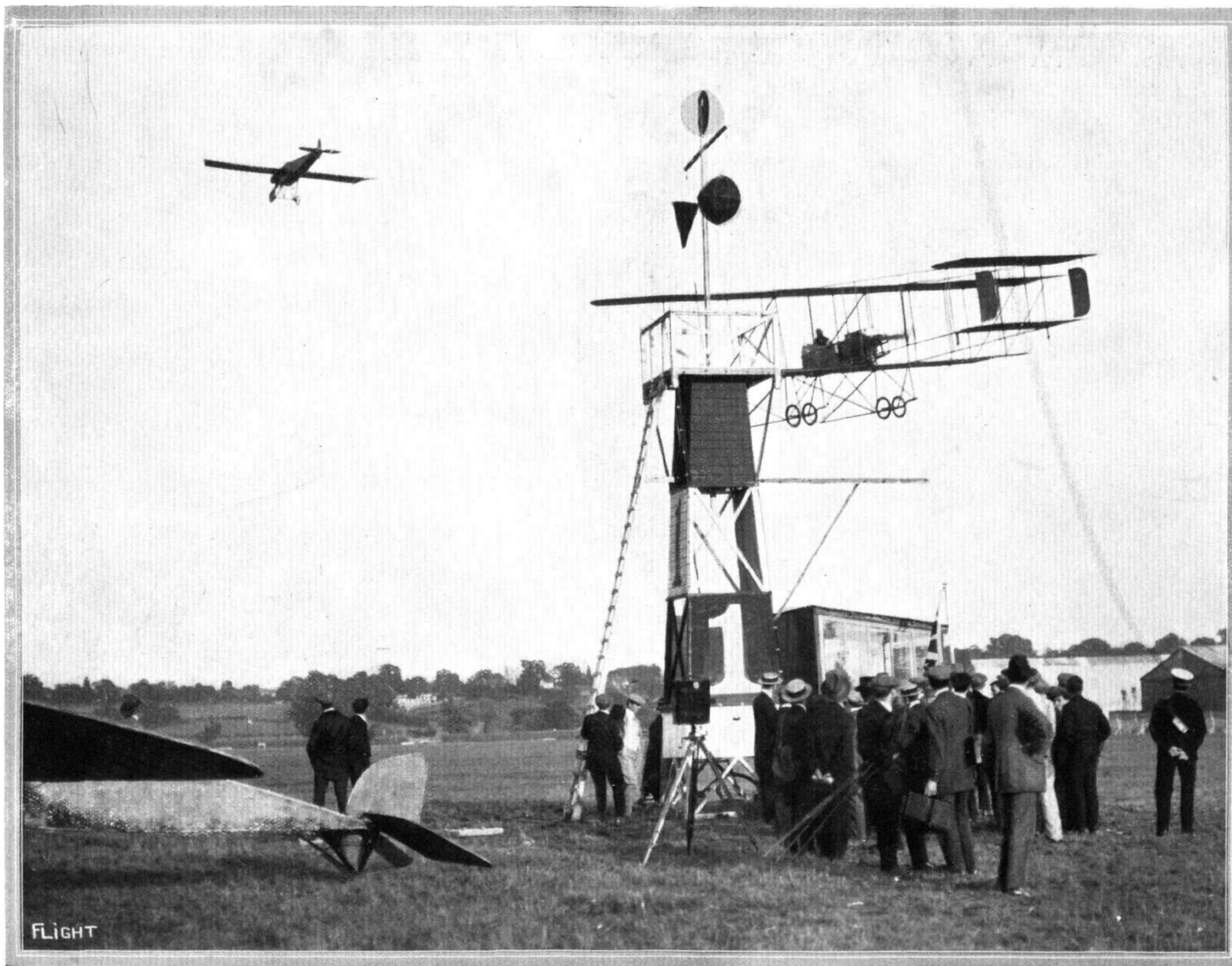
The star turns on Sunday were undoubtedly provided by Marcus D. Manton, who, at the commencement of the afternoon, ascended in the new Grahame-White biplane, making two wide circuits outside the aerodrome, climbing all the time, and passing over the Welsh Harp and behind Hendon church. When over the neighbourhood of the Welsh Harp for the second time he was about 2,000 ft. up, from which height he stopped his engine and made one fine long glide into the aerodrome with his propeller stationary. He made a very graceful landing, bringing the machine to rest opposite No. 1 pylon. His next "turn" was to take up a blind passenger, Mr. F. S. Knipe. Further exhibition and passenger flights were made during the afternoon by Manton, and also by G. W. Beatty (Gyro-Wright), W. Birchenough, R. Carr (Grahame-White biplanes), E. Baumann (35 h.p. Caudron), J. L. Hall (35 h.p. Caudron), Lewis Turner (45 h.p. Caudron), E. Marty and R. Slack (Morane-Saulnier), and P. Verrier (Maurice Farman).

We noticed a rather exciting incident which might have resulted in a nasty accident. It was when Baumann and Turner were flying close together. The former was immediately above the latter—about 30 or 40 ft. or so—when Baumann struck an air pocket and side-slipped, missing Turner's machine by a few feet, but bringing his 'bus to an even keel level with Turner, and turning sharply out of his way—a fine piece of airmanship. J. L. Hall was flying well and high on the Caudron, which has been overhauled.



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GORDON BELL BACK AGAIN.—A snap at Hendon Aerodrome on Saturday. On the right is Lieut. Porte.



ROUND PYLON ONE.—Verrier, on the Maurice Farman biplane, and Slack, above, on the Morane-Saulnier.

"Flight" Copyright.



AUGUST 30, 1913.

"Flight" Copyright.

PILOTS AND OTHERS AT HENDON AERODROME.—Left to right, back row: Messrs. J. L. Weston, E. T. Willows, A. V. Roe, W. H. Ewen, N. C. Spratt, R. T. Gates, Gordon Bell, C. H. Gresswell, W. E. De B. Whittaker, W. Birchenough, M. Chevallier, Lieut. Porte. Seated: Messrs. M. Teulade, R. H. Carr, Sydney Pickles, Pierre Verrier, Robert Slack, Lewis Turner, E. Marty. On the ground: Messrs. W. L. Brock, Louis Noel, and Marcus D. Manton.

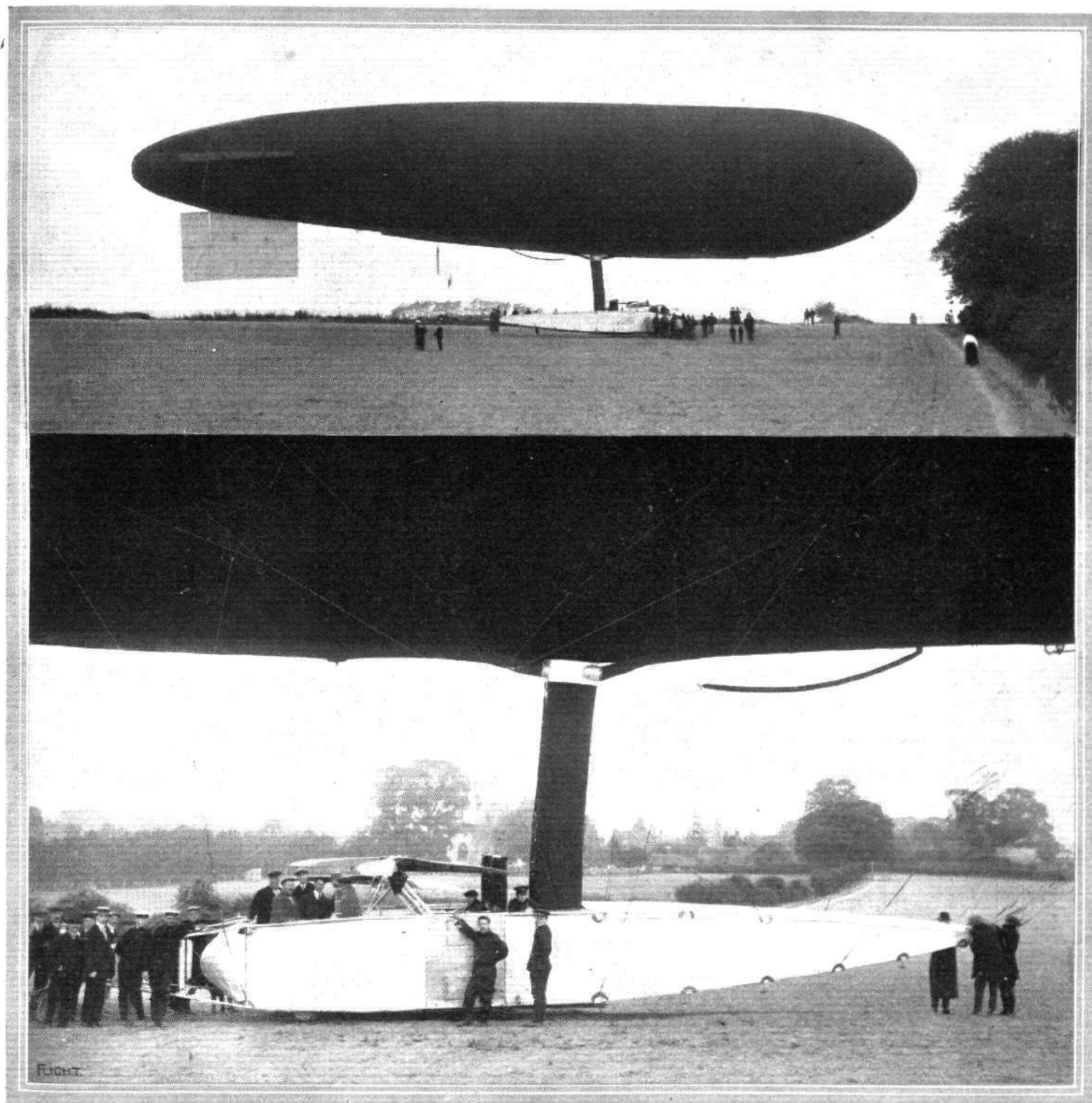
THE "ETA."

The "Eta," which represents the latest of a progressive series of small experimental airships built at the Royal Aircraft Factory, made its debut last week, and its general appearance is illustrated in the accompanying photographs.

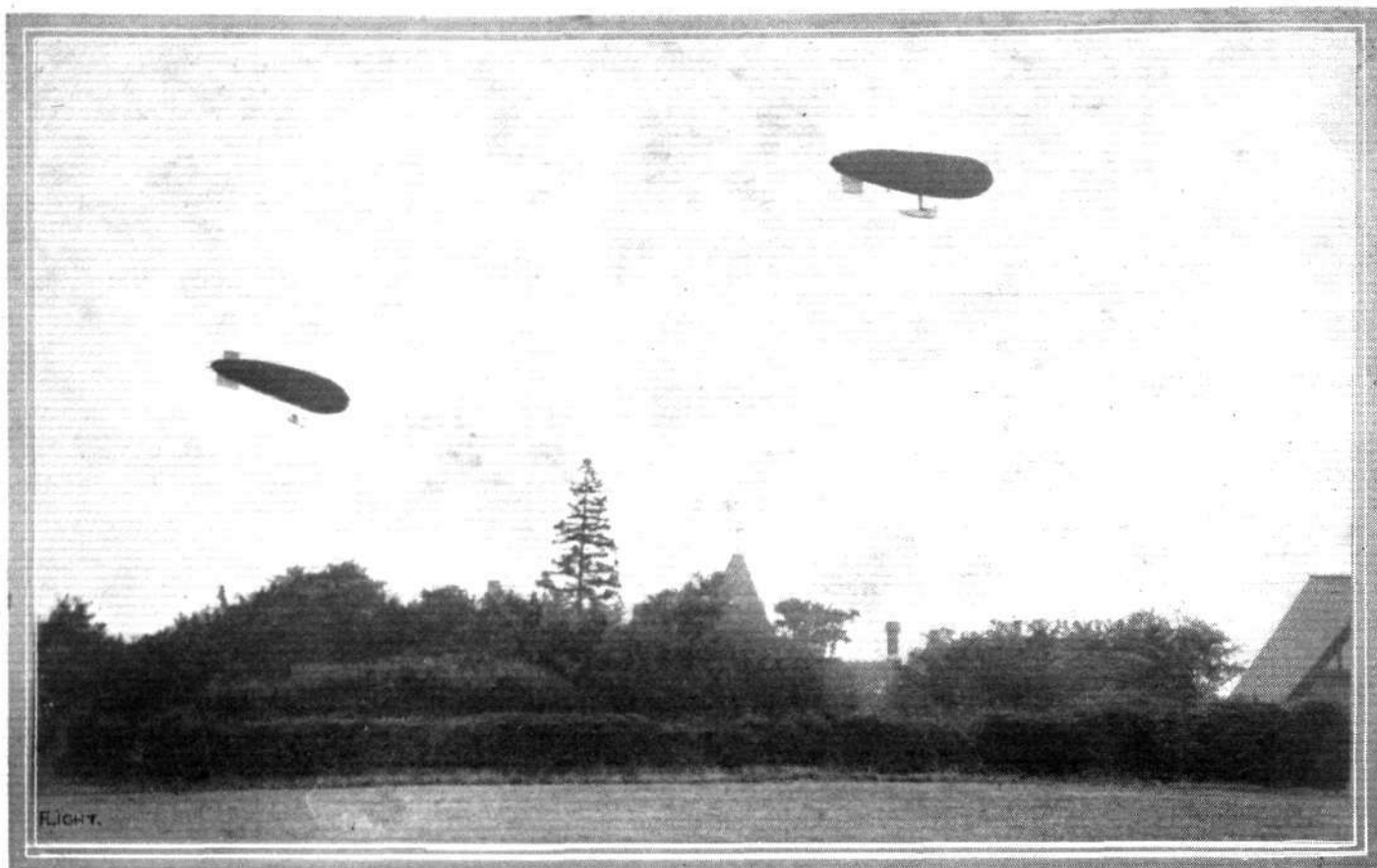
Although quite a small ship, it is of a distinctly interesting design, and it is quite evident that the work that has been accomplished in this direction at the R.A.F. has brought in its train much profitable experience. The small airships that have been built there are truly quite inadequate from the standpoint of national requirements, but the measure of their size is also the measure of the financial support the

Government has, at any rate hitherto, been willing to devote to this aspect of aeronautics, and, in consequence, there has been nothing for it but to try and make the best of the funds available. Many of the lessons learned from the construction of these small airships are at any rate likely to be extremely useful in many ways.

The capacity of the "Eta" is 100,000 cubic ft. and it carries 160 h.p. in two radial stationary Canton-Unné engines, set on opposite sides of the car with their axes placed transversely. Oblique shafts transmit the power to gearing, supported by an overhead framework, which also carries the swivelling propellers.



The new small experimental airship, "Eta," which has just been completed at the Royal Aircraft Factory, and is now undergoing her trials. This airship has a gas capacity of about 100,000 cub. ft., and carries 160 h.p. in two engines, which drive swivelling propellers. Below is seen the car of the "Eta." The engines are not visible, but the swivelling propellers are clearly shown in position ready for ascent. As the airship ascends, these propellers are swivelled round, so that ultimately their axes are horizontal for full speed ahead. In order to stop the airship they can be turned completely round so as to thrust backwards, and they can similarly be used for lowering the airship for the purposes of descent.



During one of her trial flights the "Eta" went to the assistance of Naval airship No. 2, which had broken down, and the novel experiment of towing the disabled airship was tried. The above photograph shows the disabled airship in tow behind and below the "Eta." A difference in level of about 600 ft. was maintained in order to avoid all chances of fouling the rudder gear.

The propellers can be placed with their axes at any angle, and the thrust can be directed horizontally for driving ahead or backwards, vertically for ascent and descent, or obliquely for climbing while in full motion. The design of the "Eta" makes an altogether neater-looking job than any of its forerunners, and one of the minor factors contributing to this effect is the streamline casing enclosing the air pipes from the fan to the ballonettes.

It will be understood that the envelope is non-rigid; its shape is maintained by the internal pressure of the hydrogen gas that it contains. Part of the envelope at each end is devoted to an air space, formed by what are commonly known as the ballonettes, and these ballonettes are in constant communication with a fan driven by the engine.

The fan maintains the air-pressure in the ballonettes, which are so constructed as to swell and contract in sympathy with the contraction and expansion of the hydrogen gas. Thus, although the volume of the hydrogen contained in the envelope varies with the atmospheric conditions of its environment, the total volumetric contents of the envelope is maintained constant by the air supplied to the ballonettes, and thus is the shape of the envelope preserved under all conditions.

One of the chief problems in the design of non-rigid dirigibles is, as has been pointed out before in these columns, so to proportion the length of the car to the length of the envelope as to effect an equalised distribution of stress on the envelope while using a minimum weight of metal in the frame of the car. If the car is made extra long it will be disproportionately heavy, and its apparent carrying capacity would exceed the lift available from the balloon. On the other hand, when the car is made unduly short the obliquity of the end supporting wires of the envelope tends to introduce undesirable conditions. This is obviously one of the points that has been studied in the present design.

A very novel experiment was carried out with the "Eta" the other day, when it went to the rescue of another small airship, Naval No. 2, which had broken down about eight miles away. In order to save the hydrogen in the disabled ship, it was decided to try and tow her home. Accordingly, a tow-line was attached and the two airships ascended, the "Eta" keeping about 600 ft. above the towed ship so as to avoid all chances of fouling the rudder gear. Among those on board the "Eta" in her trial flights, were Capt. Waterlow, Lieut. Usbourne, R.N., and Mr. Corbett Wilson of the R.A.F.

THE ROYAL FLYING CORPS.

THE following appointments were announced by the Admiralty on the 25th inst. :—

Lieuts. F. G. Brodribb, A. B. Gaskell, and W. G. Sitwell, to the "Hermes," additional, as Flying Officers for Grain Island Air Station; C. E. Maude, to the "Hermes," additional, as Flying Officer for Yarmouth Air Station; C. H. K. Edmonds, to the "Hermes," additional, as Flying Officer for Calshot Air Station, to date August 13th.

Assistant Paymaster C. R. Finch-Noyes, to the "Hermes," additional, as Flying Officer for Naval Flying School, to date August 13th.

Capt. H. Fawcett, R.M.L.I., to the "Hermes," additional, as Flying Officer for Yarmouth Air Station, temporary, to date August 13th.

Royal Naval Reserve.—Probationary Sub-Lieutenants J. G. V.

Fowler and R. H. Kershaw, on confirmation in rank of Sub-Lieutenants R.N.R., to date May 17th, to the "Hermes," additional, as Flying Officers for Grain Island and Calshot Air Stations respectively, to date August 13th; and R. E. C. Pierse and T. A. Rainey, to the "Hermes," additional, for Naval Flying School, for instruction in flying, to date August 13th.

The following appointment was announced by the Admiralty on the 26th inst. :—

Mr. M. W. Duncan has been appointed to the "Hermes," additional, as probationary Sub-Lieutenant (R.N.R.), for course of instruction at the Central Flying School, to date September 17th.

The following was announced in the *London Gazette* of the 26th inst. :—

R.F.C.—Military Wing.—*Special Reserve of Officers*.—Second Lieut. Collyns P. Pizey resigns his commission, dated August 7th, 1913.

FROM THE BRITISH FLYING GROUNDS.

Brighton-Shoreham Aerodrome.

THE Clerk of the Weather has been particularly unkind here during last week, wind and rain prevailing to a considerable extent. However, what little work it was possible to do was done well, and the Avro pupils have shown a marked improvement lately under Mr. Geere's instruction.

Monday and Tuesday there was a slight change, of which the Avro pupils and Mr. Cecil Pashley took advantage. It is interesting to note that another pupil, Lieut. Jocelyn Lucas, has joined the ranks of the Avro school.

Mr. Eric Pashley, it is gratifying to know, is progressing very favourably indeed.

"The Chocolate Soldier," if not rendered *hors de combat*, will continue rolling. Mr. Fieldwick has installed an Alvastron engine in this pretty machine.

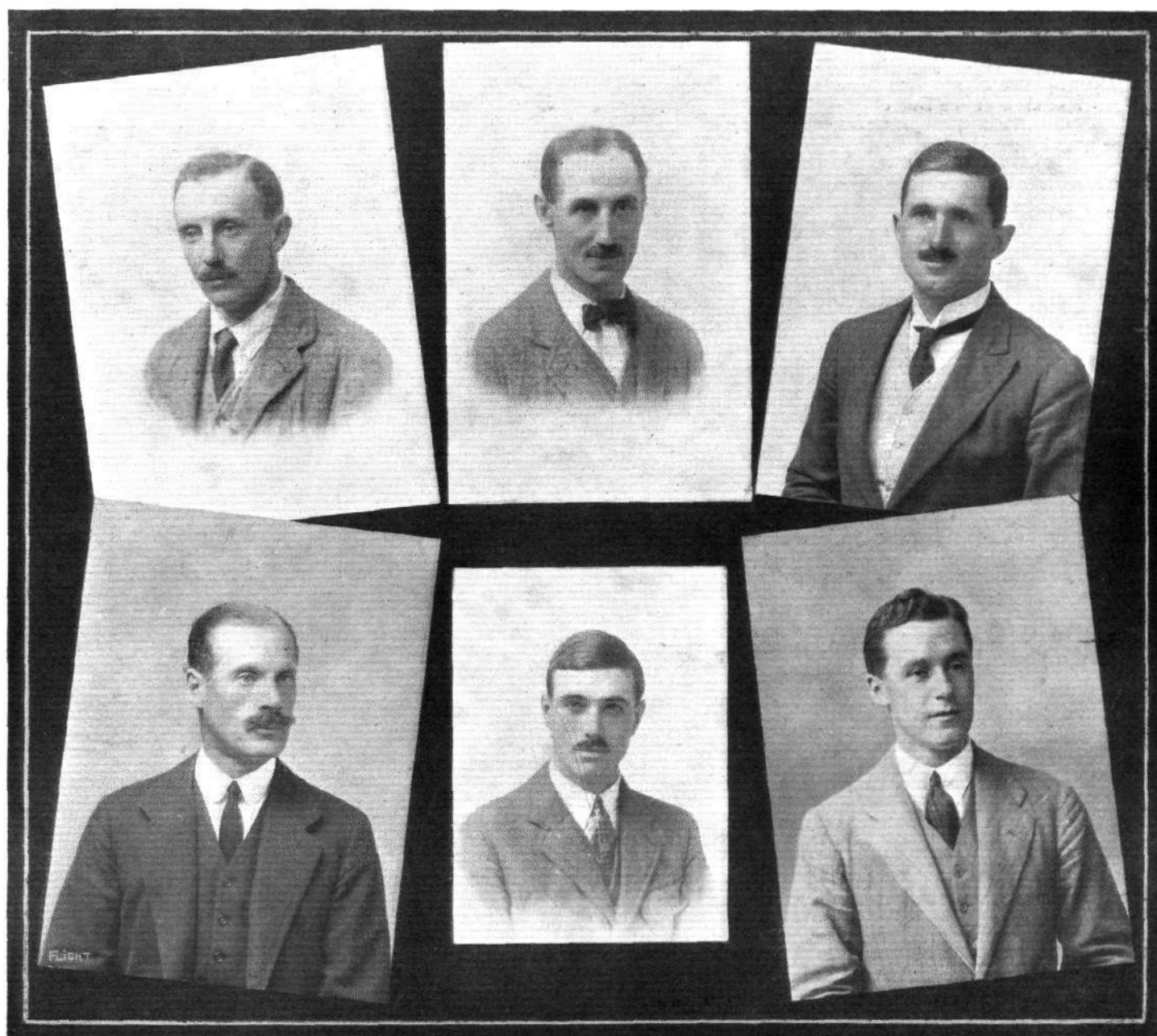
Brooklands Aerodrome.

On Wednesday last week Mr. Henry Webb, of Hersham Road, Walton-on-Thames, passed his *brevet* tests on a Vickers biplane in good style, flying steadily, and reaching 300 ft. On the same day, on the Bristol biplane, Capt. Evans, of the Black Watch, passed

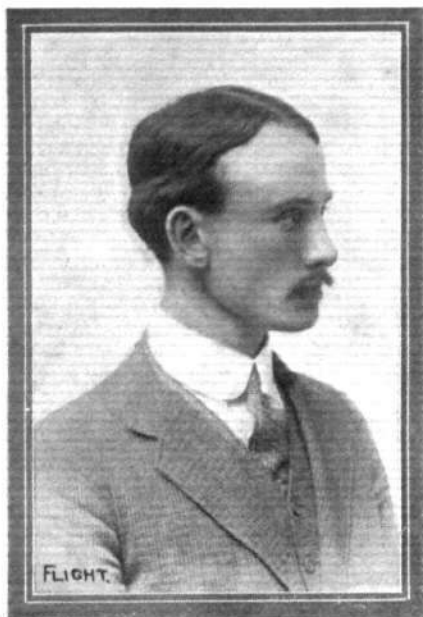
the second half of his test in good style, after which, in an increasing wind, Mr. R. Crofts Powell created another record by climbing steadily to 2,220 ft., and effecting a very clever spiral landing.

On Saturday afternoon Mr. Raynham on the Avro biplane, and Mr. Barnwell on the Blériot monoplane, started for Hendon, but only Mr. Barnwell arrived there, as Mr. Raynham had to return owing to engine trouble. Mr. Barnwell returned at an altitude of 6,000 ft., from which height he effected an excellent landing right in front of his shed. Mr. Raynham afterwards got his engine going well, and made some fine exhibition flights. Mr. Barnwell took up a passenger—a Parsee gentleman named Jamshed Dady Batliboi—to 3,500 ft. on the Vickers biplane, believed to be the greatest height ever attained by a native of India. Mr. Orr Paterson also made some flights on the same machine, and Mr. Merriam was also busy on the Bristol biplane. Mr. Alcock was further testing the Parsons biplane, with its patent stabiliser attachment, and on this machine Mr. Humphreys also made a good test flight rising to 2,000 ft.

On Sunday Mr. Raynham was first out on the Avro biplane making several fine exhibition flights, with and without passengers, with very good *vol plané* descents. Mr. Barnwell made a fine exhibition flight on the Blériot monoplane rising to a great height and



A sextette of pupils who have obtained their Royal Aero Club certificates within nine or ten days at the Bristol School at Brooklands under the tuition of Mr. F. W. Merriam. Reading from left to right (top row): Capt. Evans, Capt. Jackson (who took his ticket after a little over a week's tuition), Lieut. Darley (who took his *brevet* in excellent style at over 2,000 ft. with a spiral *vol plané* to Observers). Bottom row: Lieut. Cameron, Lieut. Mead, Lieut. Lewis.



Mr. Richard Powell, another pupil who has taken his certificate in first-class style at the Bristol School, Brooklands, he creating a record for the school by executing a spiral *vol plané* from 2,250 ft.

Capt. Evans took second part of ticket in good style. Mr. Powell also took second half of his ticket in excellent style, reaching an altitude of 2,500 ft., and finishing with a spiral *vol plané*. Weather then became too bad for further flying.

In the evening, Merriam for test, then taking Lieut. Hinds, a new pupil. Lieut. Lewis took second half of *brevet* splendidly, and landing near the mark. Merriam then up behind Lord Ed. Grosvenor on circuits, and Lieut. Playfair on straights and landings. Mr. Halford and Capt. Fisher were also up on straights with Merriam. Mr. Gaskell Blackburn a straight alone, but came in reporting it very bumpy. Merriam tried conditions with Lieut. Strong as passenger, and found it too bad for further school work.

On Thursday Merriam out first, afterwards behind Mr. Halford, Lord Ed. Grosvenor, Capt. Fisher and Lieuts. Strong and Playfair, giving them all good turns each. Merriam finished with a good solo to sheds. In the evening Merriam tried conditions, taking

making an extremely well-judged landing. Mr. Barnwell afterwards made some fine flights on the Vickers biplane, as also did Mr. Orr Paterson. The winner of the ballot for the free passenger flight—Mr. H. Bennett, of 87 Hubert Grove, Stockwell—enjoyed a nice flight with Mr. Merriam on the Bristol biplane, after which Mr. Merriam gave some exhibition flights, with and without pupils.

Bristol School.—Too windy all day Monday last week for flying, and again very windy first thing Tuesday. About 12 o'clock Merriam tried conditions, taking Mr. Halford as passenger and found very bumpy. No flying rest of day owing to wind.

Skene first out, taking Lieut. Lewis as passenger, then

last week, Barnwell and Paterson on No. 5 mono., Mr. Elsdon and Mr. Newton-Clare straights. Barnwell on biplane No. 20 with passenger. Barnwell on biplane No. 21 with Messrs. Haskins, Apps, and Wynne-Roberts.

In evening, Wednesday, Barnwell on biplane No. 20 solo, and with Messrs. Ellis, Wynne-Roberts and Joubert de la Ferte. Messrs. Charlton and Downer solos.

In the evening, Paterson on biplane No. 20. Barnwell on biplane No. 21, with Capt. Downer. Mr. Joubert de la Ferte solo. Mr. Webb on biplane No. 20 for *brevet*, getting through in excellent style. Mr. Joubert de la Ferte solo on biplane 20. Barnwell test on No. 5 mono.

Thursday morning, Barnwell on biplane 20 with Messrs. Apps, Ellis, Downer and Wynne-Roberts. Paterson with Capt. Ellis and Mr. Apps. Capts. Charlton and Downer solos. Barnwell on No. 5 mono, for test. Messrs. Elsdon and Newton-Clare straights. In afternoon, Barnwell testing propeller on No. 3 mono. In evening, Barnwell test on No. 5 mono.

Saturday morning, Barnwell testing biplane No. 21 with passenger.

Saturday last, in afternoon, Barnwell cross-country flight on Blériot monoplane to Hendon and back, non-stop, at about 5,600 ft. Then on biplane No. 21 with passenger. Paterson solo on biplane 21.

Barnwell on Blériot monoplane Sunday, then on biplane No. 21 with Mr. Webb, and then with another passenger.

Eastbourne Aerodrome.

ON Tuesday last week there was too much wind and sea for school work, and the conditions did not improve before Wednesday evening, when Fowler had the E.A.C. biplane out and gave it a test flight, after which Gassler had a stunt, and then took up Messrs. Hunt and Thornley, Mr. Thornley in the pilot's seat. Fowler then took up Lieut. Oxlade.

Early on Thursday morning Gassler had the pupils in hand again. After a test solo, he went up with Mr. Thornley, who made his first right hand turn. Following this, Gassler had Messrs. Hunt and Bevis and Lieut. Oxlade up twice each; then Mr. Bevis did a solo, flying steadily and well, but landing rather heavily. Fowler was out on the 35 Blériot built by one of the pupils. Mr. Fill and he showed it to be a



Mr. H. de Havilland, brother of the famous Farnborough pilot-designer, who has just passed his *brevet* tests on a Caudron biplane at the Ewen School, Hendon, when he showed promise of becoming as expert a pilot as his brother.



Mr. W. S. Roberts, who took his pilot's certificate last month at the Eastbourne Aviation Co.'s aerodrome.



Mr. E. L. M. Leveson-Gower, who has recently secured his *brevet* at the Blériot School, Hendon Aerodrome.



Mr. William Shaw, who recently passed for his *brevet* tests at the Avro School, Shoreham.

were forced to make a landing some distance away, owing to slight engine trouble. This was soon rectified, and they returned. Gassler then took up Mr. Hunt twice, Lieut. Oxlade twice, and Mr. Thornley once more. Mr. Bevis did his second solo, this time making an excellent landing. Mr. Fill was out on the 35 Blériot. Fowler was busy all day with the Henry Farman waterplane, making altogether 25 flights.

Tuesday morning Gassler led off with a test solo on the E.A.C. biplane, then he went up with Mr. Thornley, who is now ready for his first solo. Mr. Bevis followed, and completed the first half of his *brevet* test. He attempted the second half, but did not complete it, owing to a slight miss in the engine. Fowler had the H. Farman out after breakfast, and gave a number of passenger flights.

London Aerodrome, Collindale Avenue, Hendon.

Grahame - White School.—School out Wednesday last week at 5.30 a.m. Lieut. G. G. Carpenter doing straights with Instructor Manton behind, later in the day circuits with Chief Pilot Noel and Mr. Birchenough. Mr. Russell circuits with Instructor Manton. Mr. North circuits with Mr. Birchenough.

really good flyer. Mr. Fill then did some straights on it. Friday, owing to wind, was a workshop day, and several of the pupils took advantage of the opportunity to improve themselves in constructional knowledge.

Saturday morning Gassler brought the biplane out, but after a test, decided that there was too much wind, so contented himself with giving Lieut. Oxlade some taxiing practice.

Monday morning Gassler was out early testing; then Mr. Thornley took the control with Gassler behind. After a couple of good circuits they

W. H. Ewen School.

—On Monday last week it was too windy for pupils, also Tuesday, but on Tuesday afternoon Mr. L. W. F. Turner was testing the new 45 h.p. Caudron.

School was out at 4.40 a.m. on Wednesday. Mr. L. W. F. Turner made a test flight on 35 h.p. Caudron No. 1 and then handed machine to Mr. Watts. Mr. F. W. Goodden made a test flight on 35 h.p. Caudron No. 2 and then handed the machine to Messrs. George, Watts, Lieut. Holbrow and Capt. Jenings, who were doing straights and half-circuits. Mr. A. L. Russell did some exhibition flying, but made a bad landing and swept away the chassis. All the above-mentioned pupils were again out during the evening,



Mr. Vincent Fill, who recently took his ticket at Eastbourne Aerodrome, and the constructor of the Anzani-Blériot machine shown on this page.

including Messrs. Beatty and Bayetto, getting in excellent practice.

On Thursday Mr. L. W. F. Turner was out with Capt. Jenings, who, on No. 1, was doing straights and half-circuits.

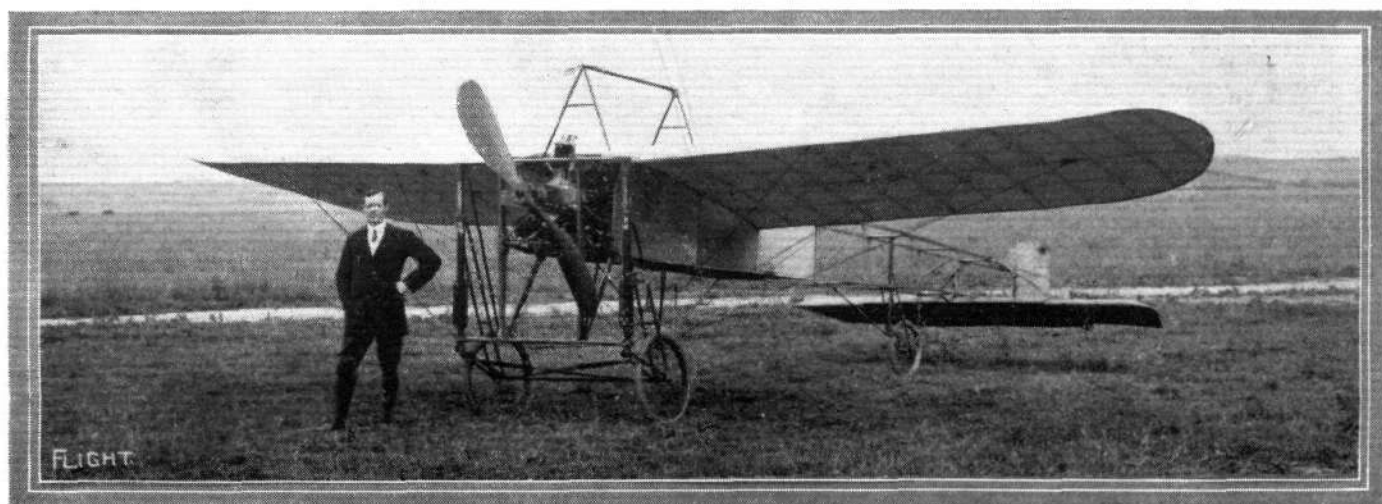
Mr. L. W. F. Turner made several flights on 35 h.p. Caudron on Sunday afternoon, and M. Baumann made exhibition flights on *brevet* machine.

Hall's School.—Monday last week T. L. Hall flying $\frac{1}{2}$ hour in evening on Caudron, and out testing engine Tuesday, and Wednesday circuits for 20 mins. in evening. Thursday, J. W. T. Scotland (of New Zealand), new pupil, joined school. Had two flights as passenger with T. L. Hall, learning controls. Too windy, Friday, for practice. Tuning up Blériot rolling machine and renovating it throughout.

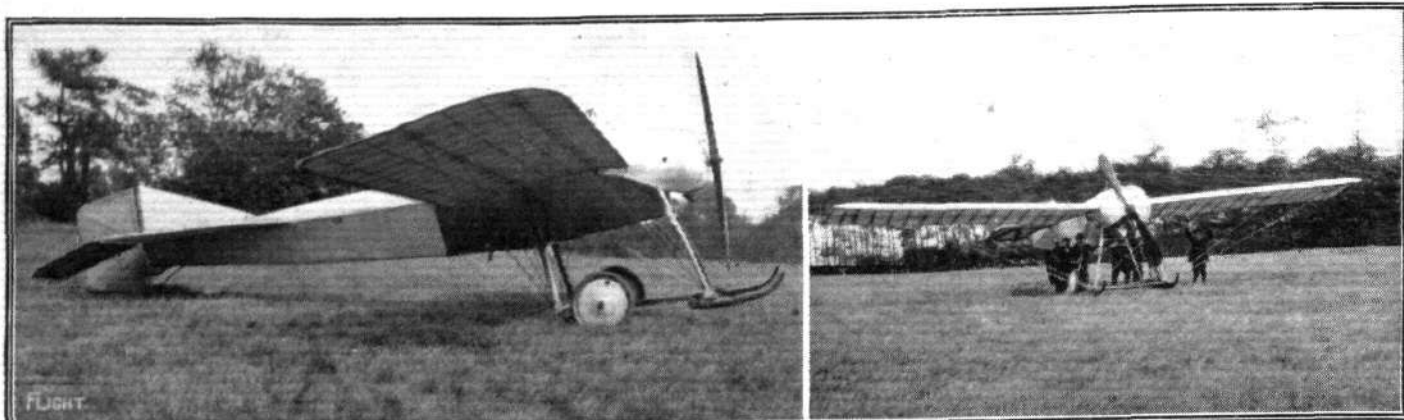
Saturday, T. L. Hall exhibit was on Caudron in strong wind. Later on J. W. T. Scotland made first appearance on Blériot monoplane, rolling across ground in good style.



Mr. Wong, a Chinese pupil, who has also taken his ticket within nine or ten days at the Bristol School, Brooklands.



Mr. Vincent Fill and the Anzani-Blériot built by himself.



An 80 h.p. two-seater Blackburn monoplane which has just been built for and supplied to Dr. M. G. Christie for touring purposes. On its test flight Mr. Blackburn climbed to about 7,000 ft. in 10 mins., and since its delivery about a couple of weeks ago it has made a number of cross-country flights, and is at present making a tour of the Yorkshire towns piloted by Mr. H. Blackburn, with its owner, Dr. Christie, as passenger. The machine has a fine gliding angle, and ranges in speed from about 40 to 70 m.p.h. In the side view the simplified chassis, the turtle back on the fuselage, and the new tail planes should be noted.

Salisbury Plain.

Bristol School.—On Monday last week, Jullerot on biplane to test conditions, but found unfit for tuition.

Pixton on tractor biplane on Tuesday for test, but found unfavourable for tuition. In the evening Jullerot first tested biplane, and then gave tuition to Capt. Hay, Capt. Ferguson, Lieut. Marsh, Lieut. Jenkins and Air Mechanic Locker, each twice. On a tractor biplane Pixton made two trials with Lieut. Bateman as passenger. Lieuts. Beroine and Pascanu each did two good solos on the tractor biplane at 1,500 ft. Mr. Garnett and Mr. De Laplane each did two good solos on the tandem monoplane. Excellent solos on the biplane were executed by Capt. Murphy (three), Mr. Courtney (two), Lieut. Halahan (three), Lord Wellesley (three), Lieut. Bateman (one), and Lieut. Spence (two).

Wednesday, Jullerot for trial on a biplane, then gave tuition to Capt. Ferguson (four), Lieut. Jenkins (four), Capt. Murphy (four), and Air Mechanic Locker (three). On a tractor biplane Lieuts. Beroine and Pascanu each did two good solos. Pixton testing a tractor biplane, flying for 45 mins., and reaching 2,200 ft., but mist prevented further test. On the biplane Lieut. Jenkins did his first solos excellently, and Lieut. Halahan and Lord Wellesley each did three solos. Lieut. Bateman also did two good solos.

Jullerot a trial in the evening, then tuition to Capt. Ferguson, Lieut. Marsh, Mr. Voigt—first flight—and Air Mechanic Locker. Capt. Murphy went for and passed successfully his ticket. On the tractor biplane Pixton, with Capt. Hay for test. Pixton afterwards giving tuition to Asst. Paymaster Coles—first flight—Capt. Hay and Air Mechanic Locker. Solos on the tractor biplane were executed by Lord Wellesley, Halahan, Spence and Bateman.

Pixton on tractor biplane on Thursday, for test, with Capt. Ferguson as passenger. Pixton afterwards giving biplane tuition to Asst. Paymaster Coles, Mr. Voigt and Air Mechanic Locker. Lieut. Spence did a long solo on biplane. Lieut. Beroine a solo on tractor biplane. In the evening Jullerot made two trials and afterwards took for a trip Lieut. Antrobus, also with Capt. Ferguson, Lieut. Marsh, Capt. Hay and Herr Voigt. Pixton on the biplane

with Asst. Paymaster Coles and Air Mechanic Locker. Lieuts. Beroine and Pascanu each did an excellent solo on the tractor biplane. Weather too windy Friday to permit of flying.

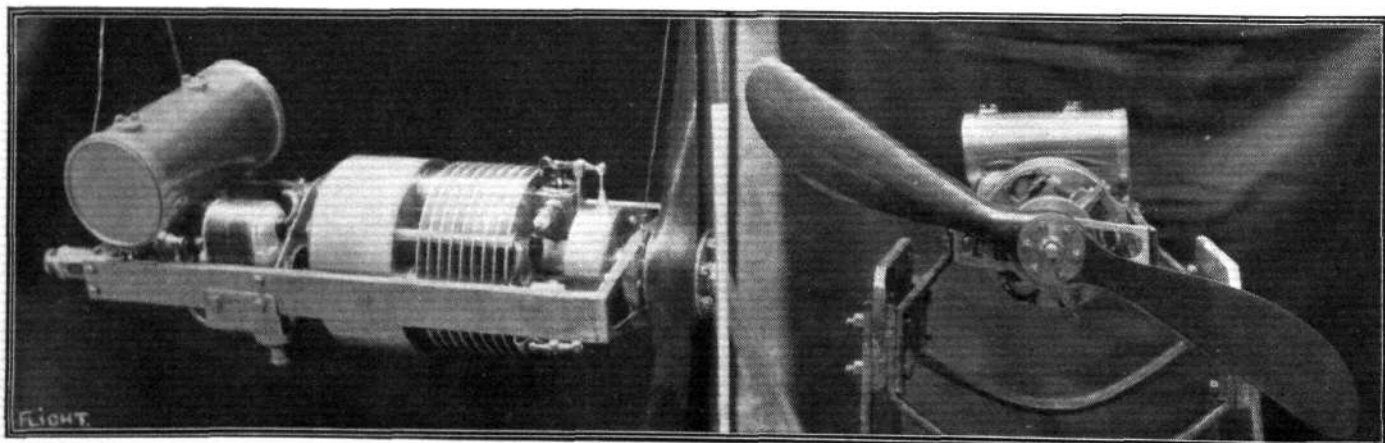
Royal Flying Corps. 3rd and 4th Squadrons (Netheravon).—On Monday week Lieut. Roupell on Henry Farman, and Capt. Herbert took up Mec. Barret and Lieut. Wilkinson. Lieut. Burroughs out on Avro 285.

Major Brooke-Popham was on Avro 285 on Tuesday, and was afterwards relieved by Lieut. Burroughs. Lieut. Roupell on Henry Farman, after a trial trip, made three flights with passengers, taking up Capt. O'Kelly, Lieut. Perry and Lieut. Wadham, the latter being taken to Bournemouth and back in 1 hr. 44 mins. Capt. Herbert on Henry Farman took up Lieut. Lloyd for a trip, and also Mechanic Edwards. Lieut. Cholmondeley put in some good flying during the day, including a one-hour trip, and another, taking up Lieut. Cruickshanks, Mechanic Pratt and Mechanic Stead.

Lieut. Roupell did some aerodrome flying on Wednesday, while Lieut. Cholmondeley on Henry Farman took up Capt. Fox. Later, Capt. Fox and Lieut. Conran on 50 h.p. Blériot, flying for two hours between them, while Lieut. Burroughs was up on Avro 285.

Thursday Lieut. Roupell on Henry Farman took up Lieut. Allen three times, Lieut. Cholmondeley, also on observing practice, taking up Mechanic Miles, then Mechanic O. Gorrilgian for aerial photography, and Lieut. Joubert de la Ferte for 1 hour's reconnaissance. Lieut. Conran on Avro 285 for a flight, but owing to engine trouble had to land near Shrewton, returning to the sheds later.

On Friday Lieut. Conran, on Avro 285, was observing artillery fire, while Lieut. Porte, on BE 203, with Mechanic O. Gorrilgian as passenger, taking photographs. Lieut. Roupell on Henry Farman, with Lieut. Allen observing for one hour, after which he made another flight with Lieut. Allen. Lieut. Cholmondeley on Henry Farman round the aerodrome, and later taking up Lieut. Joubert de la Ferte for a flight of 45 mins. Again Lieut. Porte up on BE 203, taking up Capt. Forsyth for a flight, and another flight alone. No flying on Saturday on account of bad weather.

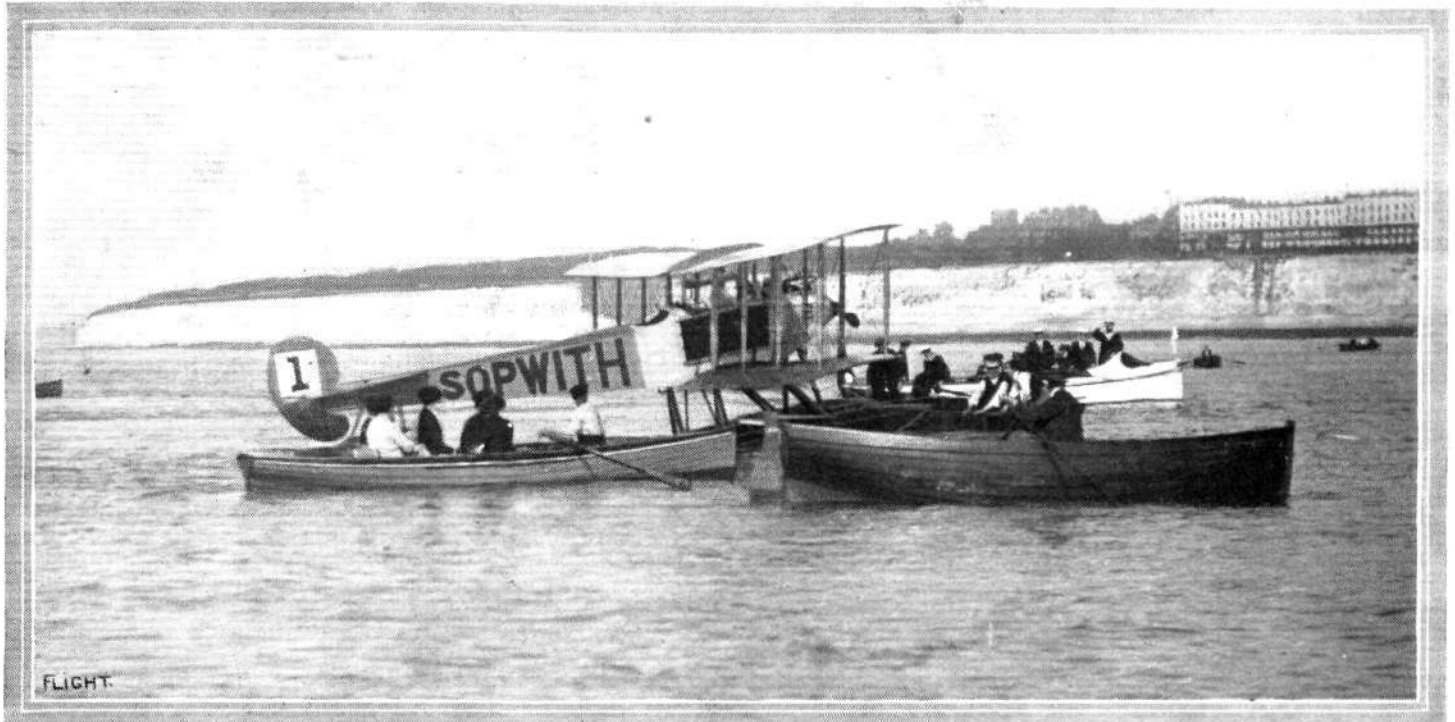


The Hansen rotary aero engine, in which the cylinders are parallel to the propeller-shaft, which is driven by some sort of "wobble" gear presumably. A small motor of this type has been built and demonstrated on the bench.

ROUND BRITAIN WATERPLANE FLIGHT.

DESPITE the fact that Mr. McClean's withdrawal on account of radiator trouble had robbed the event of the competitive interest, when Hawker on the Sopwith biplane started from Southampton Water on Monday morning for his second attempt to follow the British coast round, the progress of his flight was followed with as

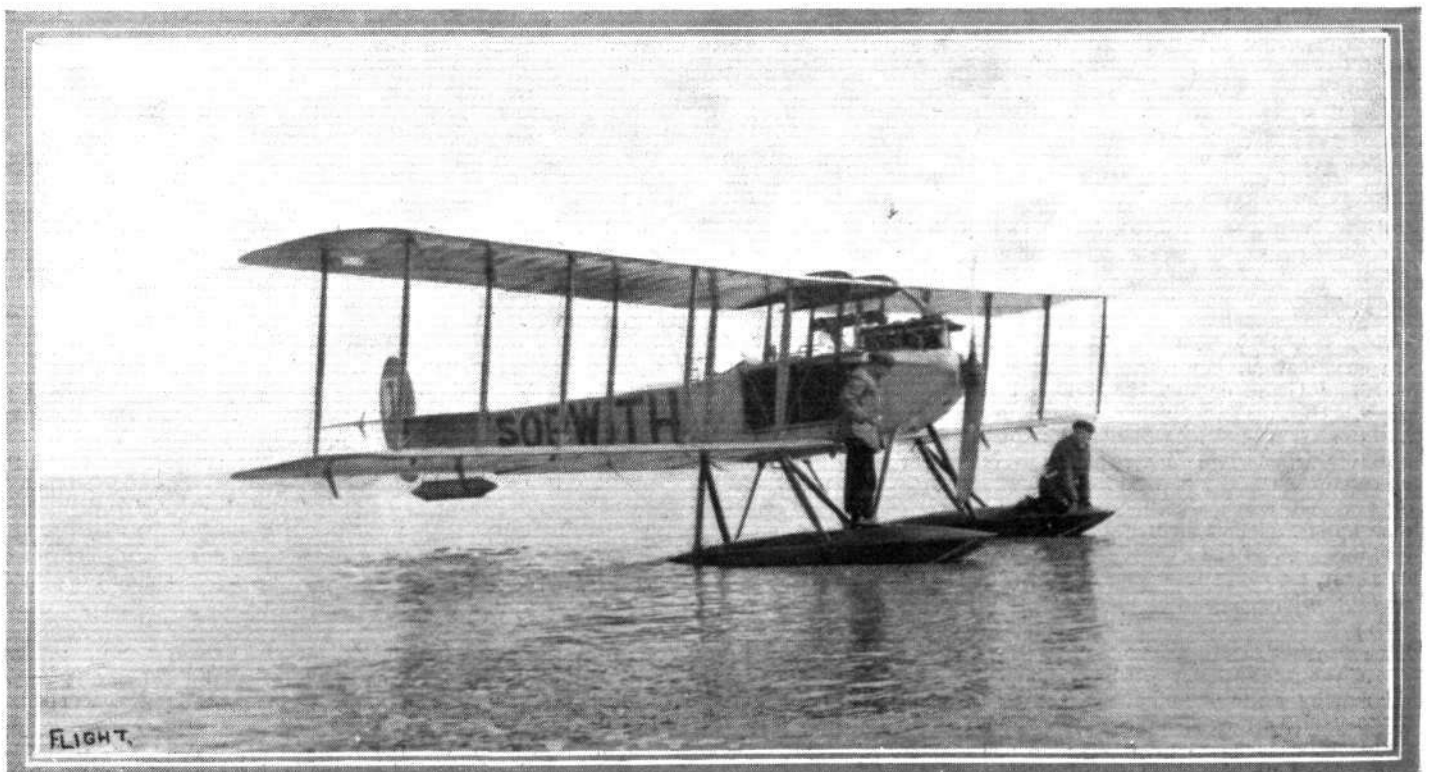
thick mist came up, and all that was seen of the Sopwith machine from the Enchantress was a glimpse of it as it sped over the starting line at half-past five. Once out of Southampton Water, clearer weather was found, and the pilot, this time carefully protected against the elements, steered a straight course down the Solent and



ROUND BRITAIN FLIGHT.—The Green-engined Sopwith waterplane "in control" at Ramsgate on Monday.

much eagerness as if he were the "favourite" among many. On the previous Saturday he had had the machine out for half an hour, and found it going as well as ever, while the noise from the engine had been appreciably reduced by lengthening the exhaust pipe. Monday morning opened clear and bright, but shortly after five o'clock a

out to the English Channel. Round the coast-line a good deal of mist was encountered, and Hawker had to rely on his compass at several points. The conditions were responsible for a slight reduction of speed compared with the previous flight over this stage, but Ramsgate was reached at eight minutes past



ROUND BRITAIN FLIGHT.—The Green-engined Sopwith waterplane immediately after arriving at the Yarmouth control. Mr. Hawker and his passenger, Mr. Kauper, are seen on the floats.



ROUND BRITAIN FLIGHT.—Arrival of the Sopwith machine at Scarborough, and on the right, Royal Aero Club officials—Messrs. Wallace Barr, B. M. Dodds and W. E. Nicol—escorting Hawker to the official yacht.

Photos by W. L. Woodruff.

eight, the 144 miles from Southampton having taken 159 mins. The formalities were completed well within the compulsory time-limit of half an hour, but some small adjustments took up a little more time, and it was eight minutes past nine ere the Sopwith machine was on its way to Yarmouth. The weather was still very thick, and little was seen of the land until Southwold was reached, but the sturdy machine made light of its task, and 1 hour 28 minutes flying saw the stage of 96 miles completed. The machine was taxied to its mooring, and Hawker boarded the motor boat of an Australian friend, Mr. A. Williamson, to enjoy a brief rest and some refreshment, while Mrs. Williamson presented a mascot in the shape of a spray of Australian eucalyptus leaves. This time it was the faithful mechanic, Kauper, who was feeling the strain of the flight.

At 11.44 the machine was once more on the wing and headed for Scarborough, 150 miles away. Still the mist was very trying, and off Cromer the side winds tested the air-worthiness of the Sopwith construction pretty thoroughly. Steering by the compass, however, and keeping at his usual height of about 1,000 ft., Hawker made a good course, and arrived at Scarborough at 2.42 p.m., his arrival being watched by a huge crowd, who had flocked into the town from the surrounding districts. After a brief period of rest on board Mr. W. Jackson's yacht "Naidia," he was back attending to his machine, and in view of the length of the next stage (218 miles) to Aberdeen, he arranged to make an intermediate stop at Berwick to pick up petrol. Soon after four everything was ready for the restart, and the crowd of boats was cleared out of the way to enable the machine to rise. At 4.22, it skimmed along the water for a short distance, and rose steadily to disappear rapidly in a northerly direction. On the way a leak developed in one of the water pipes, and a stop of 1 hr. 5 mins. had to be made at Seaham Harbour in order to effect an adjustment, and to replace the water lost. At 6.40, the journey was resumed, but the tides were against Hawker, and another descent had to be made, this time at Beadnell, about 20 miles south of Berwick. It was at 7.40 p.m., and several things combined to put an end to the day's flying, which had accounted for 495 miles. It was getting too dark to see the compass, the winds were very troublesome, and the engine started misfiring. On examination, however, there appeared to be nothing wrong with the Green engine, the trouble being really with the water pipes. Hawker and Kauper decided to stay the night and make a fresh start at 5 o'clock the next morning. As a matter of fact, however, it was five minutes past eight before the Sopwith biplane was again in the air, and 20 mins. later Berwick was passed. At 9.55 a call was made at Montrose for water, when adjustments took up just on half an hour. Aberdeen, the next control on the list, was reached at 10.58, the machine coming down from a height of about 1,500 ft. by a fine spiral *vol plané*. The weather now was splendid, and both pilot and mechanic declared themselves in

fine form. This time just under an hour was spent in attention to men and machine, and at 11.52 the city of granite and marmalade was left behind. Cromarty was the next control, the 134 miles being traversed in 2 hrs. 13 mins., the trip being uneventful except for a tricky wind which was encountered when nearing Cromarty. It was recognised that the 94-mile stage from Cromarty to Oban, over the Caledonian Canal, would probably prove to be the most trying part of the whole route, and Hawker found that the conditions were certainly very erratic. The gusty winds in that mountainous region required very careful negotiating, and although Cromarty was left at five minutes past three, it was six o'clock before Oban was reached. It was then too late to think of starting on the long stage to Dublin, and the pilot and mechanic decided to take advantage of the opportunity of a good long rest, and get away early the next morning. They were astir at 4 a.m., and after a hurried breakfast were quickly at work inspecting the various parts of their machine. Soon after half-past five everything was ready, and at 5.42 Hawker was officially started for Dublin, although in view of the length of the stage he had arranged to call at Larne for petrol. The machine did not rise, however, with its accustomed readiness, and Hawker took her to the beach, about a mile out of Oban. It was there found that there was water in the floats, and an hour was spent in getting rid of it. Then a clean ascent was made, and a straight course steered down the Firth for the Irish coast. Scotland, however, could not be left so easily, and half an hour's stop had to be made at Kiells, in Argyllshire, in order to give a little attention to the engine. He was away again at 8.25, and at half-past nine made a splendid descent into Larne harbour. An hour and a half were spent at this point, the journey south being resumed at 11 o'clock. When only a few miles short of Dublin, Hawker feared that some of the valve springs of his motor were giving out, and he decided to come down and make an inspection. Again it seemed as if his luck had deserted him, for had he known that Mr. Green was waiting at Dublin, with new springs, he would have kept on. As it was, while making the spiral descent, his foot slipped from the rudder bar, apparently through his boot being greasy, he lost control of the machine, and she dropped to the water. Happily the first report that Hawker was injured proved unfounded, but Kauper had an arm broken and was cut about the head. Medical aid was quickly at hand, and he was taken in a motor car to the Mater Misericordiae Hospital, Dublin, where he is making as good progress as can be expected. The machine was smashed, but the catastrophe was not the fault of either the Sopwith machine or the Green engine. It was, as Hawker put it, "just a piece of ghastly bad luck." So ended the great flight when 1,043 miles out of the full distance of 1,540 miles had been covered. It remains to be added that the *Daily Mail* immediately announced that in recognition of his skill and courage a personal gift of £1,000 would be made to Hawker.

The Hucks-Hamel Match.

CONSIDERABLE interest has been aroused in the Midlands by the match for a trophy offered by the *Birmingham Daily Post* and £500 a side, arranged for to-day, Saturday, between B. C. Hucks and Gustav Hamel as the result of a challenge by the former. It is proposed to start from the Tally Ho grounds, Edgbaston, at 2.30, and to fly to Redditch, Coventry, Nuneaton, Tamworth, Walsall and back to Birmingham. At Redditch, the control will be the Fairground; at Coventry, Green's Field, Old Allesley Road; and Nuneaton, the new aerodrome on Attleborough Fields Farm. At

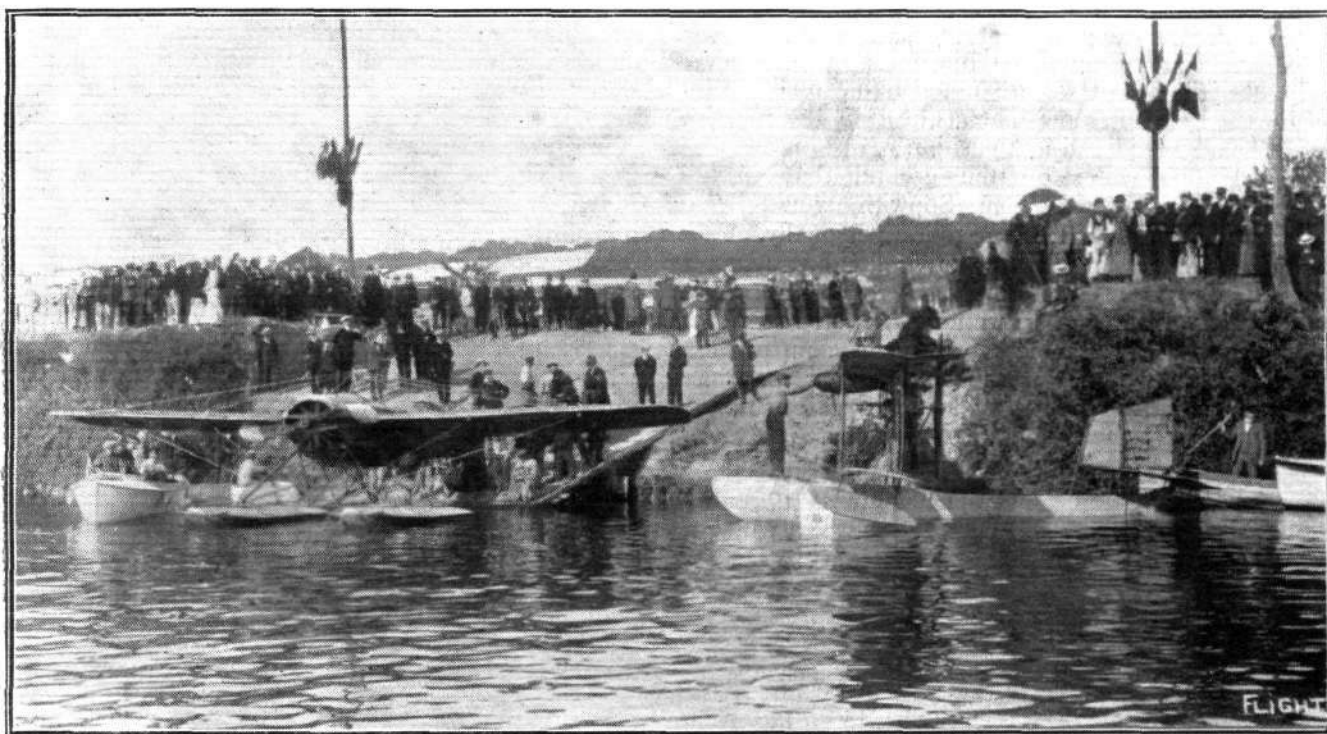
Tamworth the competitors will alight at Drayton Manor, at the invitation of Sir Robert Peel, Bart., and the control will be of 40 mins' duration, whereas at the other points the control period will be half an hour.

From Tamworth the route is to Springvale Farm, on the Birmingham Road at Walsall, while for the last stage the two pilots will steer a course between West Bromwich and Smethwick to a point near Quinton, where a sharp turn back to Edgbaston will be made. Both Hucks and Hamel will be using 80 h.p. Blériot two-seater monoplanes of the latest type.

DEAUVILLE WATERPLANE MEETING.

A FEW years back the Paris to the Sea race was one of the chief annual events for motor boats, but this year waterplanes have taken their place. The race was designed as a prelude to the competition for naval waterplanes organised by the French Aero Club in conjunction with the Naval authorities, and it created a tremendous amount of interest, as was evidenced by the large crowds of people lining the banks of the Seine on Sunday. The actual start was at Le Pecq, by St. Germain, just outside Paris, and Weymann, on a Nieuport, was the first to get the signal to go at half-past eight. Within two minutes Levasseur, on the second Nieuport, left, and then at intervals of a few minutes Prevost (Deperdussin), Janoir (Deperdussin), Molla (Leveque), Chemet (Borel), Rugere (Bathiat), de Montalent (Breguet) and Divetaïn (Borel-Denhaut). Prevost, Molla and Rugere made false starts, but all managed to get away subsequently. The course, following the tortuous windings of the Seine, was 330 kiloms., or a little over 200 miles, and at each bend in the river an official was stationed to see that the route was followed. The first to complete the journey was Geo. Chemet, who crossed the finishing line at five minutes to one, having taken 3 h. 47 m. 50 s. Then there was a long wait of just on four hours before the second man, Levasseur,

also completed the journey to Deauville. He had been in trouble with his magneto at Elbeuf, and in starting the float of his machine had been damaged. The holes in the hull were, however, patched up with a couple of pieces of leather. In alighting at Deauville these gave way, and the machine rapidly began to settle down, but fortunately the plight of the pilot and his passenger being noticed, they were rescued by a boat from one of the warships. Another serious accident also occurred to the Dussot machine piloted by Bosano. After rising to about 14 metres it suddenly dived, then climbed steeply, and finally dived into the sea. Help was quickly at hand, and the pilot extricated from the machine, his most serious injury being a deep cut on the thigh. In the afternoon a start was made with the preliminary trials. Bregi, Moineau and G. Caudron each did the eight rounds the two buoys placed 400 metres apart, the machine being taxied over the water. Moineau and Bregi carried out the rising test, which had to be done in a maximum distance of 400 metres, and also the mooring trial, in which the machines had to remain held by their own anchors for an hour during which the floats were closely inspected for leakages, &c., any machine with leaky floats having to be disqualified. It should be noted, too, that the machines had to be



THE PARIS-DEAUVILLE WATERPLANE RACE.—General scene at the start from Paris.

arrived. He had had to make two stops, one for magneto trouble and the other to replenish petrol, before reaching Rouen. The third to finish was Molla, who had been in trouble with his petrol tank, which had entailed several stops. The maximum time for the course was ten hours, and eleven minutes after this had elapsed Janoir arrived on his Deperdussin. The first out of the race was Weymann, who on arrival collided with a tree and smashed one of the wings of his machine. It was at Rouen, too, that disaster overtook Montalent on the Breguet. Apparently due to the *remous*, the machine was rolling a good deal as it came in sight of Rouen, and then it suddenly dived to earth, while the great crowd watching it were horrified to see pilot and his mechanic flung out of the machine. Both were of course killed, the mechanic falling on the banks of the river, while Montalent fell on to a barge.

The times of those who completed the course were: 1. Chemet (Borel, 80 h.p. Gnome motor, Chauvière propeller), 3 h. 47 m. 50 s.; 2. Levasseur (Nieuport, 160 h.p. Gnome motor, Chauvière propeller), 7 h. 38 m. 15 s.; 3. Molla (Leveque, 100 h.p. Gnome), 8 h. 46 m. 11 s.; 4. Janoir (Deperdussin, 100 h.p. Gnome), 10 h. 11 m. 4 s.

On Monday morning the naval waterplane competition commenced with the inspection of the machines present, which included two M. Farman, two Caudron, two Deperdussin, the Borel, the Dussot, and the Leveque. During the morning Moineau and Bregi flew the two Breguets from Havre, Weymann arrived on his Nieuport, which had been repaired at Rouen, and Divetaïn, on the Borel-Denhaut,

held in five fathoms of water by an anchor dropped from the pilot's seat. Moineau also carried out the altitude test, in which the maximum time allowed for the minimum height of 500 metres was 25 minutes, while Caudron did the fourth test, consisting of a flight in a wind blowing more than 10 metres a second, round a quadrilateral course, of which the diagonal was at least a nautical mile long, and turning round each of the mark buoys.

On Tuesday the figure "8" test was carried out by Renaux (M. Farman), Levasseur (Nieuport), R. Caudron (Caudron), Prevost (Deperdussin), the get-off test by Levasseur, R. Caudron, Prevost, Molla (Leveque), the mooring test by Levasseur, Chemet (Borel), and Molla, the altitude test by Bregi (Breguet) and Molla, Bregi climbing the 500 metres in 8 m. 10 s., speed and duration tests by Bregi, Chemet and Molla.

In these last tests, which were run in conjunction, the machine first flew for half an hour over a course of at least a nautical mile, with and against the wind, when the mean speed had to be not less than 45 knots. Then the machine continued without stopping for another half hour, and eventually landed in full view of the officials. During this flight the petrol consumption was measured. Bregi also did the equilibrium test, in which the machine had to turn itself head to wind. To test this, the machine was first moored with the wind behind, and then cut loose. During the morning Bertin, one of Nieuport chief pilots, arrived with a passenger from Villacoublay, and in the afternoon Audemars was doing some fantastic flying.

ARMCHAIR REFLECTIONS.

By THE DREAMER.

The Sopwith-Hawker-Green Combination.

I REALLY cannot let this issue go to press without having a word to say about the topic which is on everybody's lips; the race round Britain. At the time of writing, H. G. Hawker has only reached Cromarty. I say "only," with regard to the full distance to be covered, and not as meaning I had expected him to have got further; and what a magnificent flight! Southampton to near Berwick in a single day. I wonder what some of those who lived during the old coaching days would think could they know of the advance in modern travel; I wonder what the versatile Sam Weller would have said about a machine which could have delivered the venerable Pickwick safe and sound at Ipswich, whilst he, following in the coach, was changing horses at the "Castle" at Woodford.

Mr. Sopwith has every reason to be proud of his machine. That he himself is a pilot of skill and great experience, experience gathered not only in this country, but abroad, is liable, if we are not careful, to slip one's mind for the moment, now that, as head of the Sopwith Aviation Co., he is placed in a position where his services are of far more value on the ground than in the air. A year ago and Tom Sopwith would have undoubtedly piloted his machine round personally. That his experience is now standing him in good stead as a constructor is proved by the splendid performances of the machines emanating from his works. When one considers the comparatively short time in which this company has been building, and then remembers that their machines hold all the altitude records—and good ones at that—for this country, together with the Michelin Cup No. 1, the Mortimer Singer prize for six flights, with alternating landings on land and water, and the splendid performance now being put up, the Sopwith machine must be rated as one of the very best.

And what of the engine? Surely no one will say after this that England cannot build a good aerial engine. Think for one moment of this engine, so light that it only weighs some three pounds per horse-power, pounding away hour after hour, and asking nothing but to be kept well fed with petrol and oil. Have you ever seen the crank case of an engine, with the crank-shaft in position, having the bearings tested by a bench run, by power applied from without? I have; and at top speed the cranks move so fast as to appear as one straight line of shining metal, and do not seem to be moving at all. Imagine this Green engine moving at this speed with the pistons in position, and induction, compression, explosion and exhaust taking place so rapidly, together with all that it means in the way of moving valves, and keeping this up for hours on end! It says something for construction. Of the pilot, what can I say? The strain, mental and physical, must be enormous. Think of some one or other of the long journeys you have done in a motor car; remember how stiff and tired and worn out you have felt at the end of the day, with nothing but the ordinary care needed on the road to worry you; and think of this man sitting there twelve hours a day, day after day, thousands of feet up in the air, ears keenly on the alert all the time to notice any different note in the tune of the engine, eyes, whenever they can be removed from the petrol and oil gauges—not forgetting the compass, altimeter and other instruments—for a moment, striving to pick up and follow the coast line, always alert, always watching, always ready, and always the excitement of the race—the knowledge that one is attempting something never before accomplished; it needs nerves of steel to stand it, and Hawker has evidently got them. May he come in safe and sound with time to spare, and get all that he deserves.

THE "WIGHT"

THE following very interesting account, received from a correspondent, of the successful *début* last week-end of the waterplane designed by Mr. Howard Wright, and built by Messrs. J. S. White and Co., will doubtless be read with interest. It will be remembered that the planes of this machine are peculiar in that they have a double curve.

Our correspondent writes from Cowes under date August 24th:—
"East Cowes, August 24th, 1913.

"You will, I am sure, be interested (and pleased) to know that White's 'plane' went for a fine 'fly' yesterday morning. They got Gordon England to come down, and, after having a look round the bearings at Osborne Bay from a motor boat on Thursday morning, England, in the afternoon, taxied out and got the 'hang' of the machine, but did not attempt a flight as there was rather much wind. Friday blew hard all day, and yesterday morning about 9.30 he taxied out in the Roads and calmly lifted her (whilst going with the wind) and flew most perfectly out over Ryde Pier and back, planing down on the water most satisfactorily. Everyone is delighted; England says she is the best machine he has flown. He adjusted the *ailerons* when he rose, and did not touch them afterwards; she actually flew at 30 m.p.h., and he found that he had to throttle down his engine very much as she was so anxious to climb, although he had 200 lbs. weight ballast in lieu of passenger. He also said that her lifting power was so great that she could have had much smaller planes.

"He now wants as near an absolute quiet windless day, in order that he may get certain data, inclination, &c., and he will then put her through an exhaustive series of trials; but I think she is quite all right as she flew so perfectly steady in both right- and left-hand turns.

"It would seem as though the cause of the two mishaps was her anxiety to climb with a full throttle, which, of course, turned her

WATERPLANE.

over before the pilot could bring her back; but with England, he steadily opened her out with the foregoing result. The full speed of the 'plane' should be 70 m.p.h., but, of course, that has not yet been tried."



"Flight" Copyright.

RIVAL ATTRACTIONS.—"A monoplane in sight." When the Pierrots lose their audience at Hendon Aerodrome.

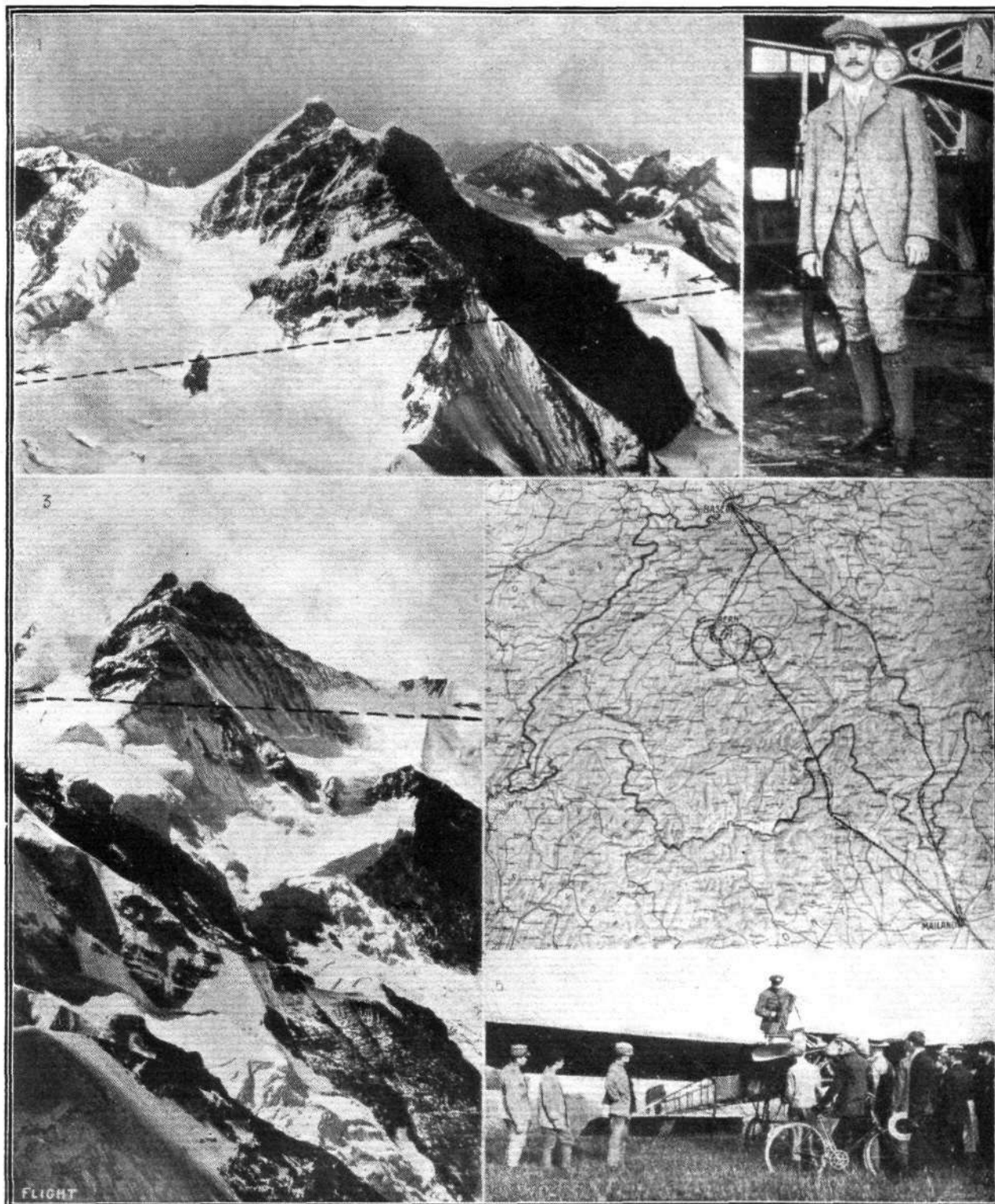
FOREIGN AVIATION NEWS.

For the Coupe Pommery.

LAST week-end saw three good flights for the Pommery Cup. On the 22nd, Helen on a single seater Nieuport with Clerget engine started from Biarritz and after stops at Bordeaux and Poitiers gave up at Châteaudun after covering 600 kiloms.

On Saturday two competitors started—Guillaux on a Clement-

Bayard and Letort on a Morane-Saulnier. The former started from Biarritz with the intention of flying to Denmark, while the latter's route was from Paris to Berlin and Riga. Guillaux got away from Biarritz at five mins. to five on Saturday morning, and after a splendid flight of 5 hrs. 40 mins. he landed at Villacoublay. Only half an hour's rest was taken before the second stage was begun at 3 minutes past eleven,



BIDER'S RECENT FLIGHTS OVER THE ALPS.—1. The route followed by Bider in passing the Jungfrau after leaving Berne. In the centre is the Jungfrau (4,166 metres), to the left the Valaisannes Alps, in between the Rottalsattel (3,857 metres), to the right below the Bernese Alps. Over the line of route to the right is seen the Silverhorne (3,795 metres), and in the foreground, leading up to the Jungfrau, the commencement of the 21-kilom. Aletsch glacier. 2. Bider standing in front of his Blériot. 3. Similar view of the Jungfrau, &c., seen from a more distant standpoint. 4. A map showing the route followed by Bider from Berne to Milan, with the return journey via the St. Gothard to Bale and Berne. 5. After Bider's landing at the end of the Berne-Milan flight.—*La Suisse Sportive*.

and another three hour's flying took the aviator to Etterbeek, just by Brussels, where he arrived at 2 p.m. A rest of three-quarters of an hour was taken this time, and his next stop was at Brackel, about sixty kiloms. north-east of Bremen, where he was detained for two days by the authorities pending enquiries. The total duration of his flight was about 1,380 kiloms., whereas Brindejone des Moulinais' record is 1,400 kiloms.

Letort on getting away from Villacoublay at 4.57 made a non-stop flight to Berlin, his time for the 910 kiloms. being 7 hrs. 8 mins. After a good rest he mounted his machine again, with the intention of getting to Warsaw, but was obliged to come down at Danzig, at which point he was 1,350 kiloms. from Paris.

Jensen on a Clement-Bayard monoplane fitted with a 60 h.p. Clerget engine, started at 5.6 from Valenciennes on Sunday morning, with the intention of making a non stop flight to Russia. Steering a course *via* Liege, Cologne, Hilde-heim and Magdeburg he was well on the way to Berlin when he was much bothered by the wind. He stuck to his task gamely, and turning southwards passed Dresden, and eventually landed at Peterswald, in Bohemia, having covered a distance of about 800 kiloms. without a stop in 10 hours.

The Dunne Biplane Over Paris.

PARISIANS had a sight of the Dunne biplane in the air on the 20th inst., as Commandant Felix piloted the machine over the French capital during a quarter of an hour. At the same time Bosano on a Deperdussin-Anzani was flying over the city, so that by contrast the distinctive features of the Dunne machine were emphasised.

The Gordon-Bennett Meeting.

DETAILS have now been issued by the Aero Club of France concerning the three days' meeting at Rheims, on September 27th, 28th and 29th. The first day will be given up to the French eliminating trials for the Gordon-Bennett race, the course for which will be 100 kiloms., half the distance of the race itself; the programme for the second day will be made up of speed, speed-range, altitude, and cross-country competitions, while the Gordon-Bennett race will take up the last day. For the race six countries have entered, but only France and Great Britain have entered full teams of three each. The United States will send two, and Belgium, Germany and Italy one each. On the second day, for the speed contest, which will be over 3 laps of the 10-kilom. course, competitors will be required to qualify by flying over an out and home course of four kiloms. at a speed of at least 65 kiloms. an hour. In the speed-range contest the competitors will qualify by going one round of the 10-kilom. course at a speed of at least 90 k.p.h., while the award will be based upon the slowest speed made on the out and home course of four kiloms. marked out by two pylons placed two kiloms. apart. In the altitude competition, there will be three sections: pilot alone, pilot and one passenger, and pilot and two passengers. The cross-country event will be of 150 kiloms., five times round a 30 ki'om. circuit, and there will be two classes: 1. Monoplanes; 2. Multiplanes. The Gordon-Bennett race will be of 200 kiloms. over a circuit of at least 5 kiloms. round, and it will start at 9 a.m.

The French Aero Club Trouble.

It will be remembered that soon after the winning of the Gordon-Bennett Aviation Trophy in America last year by Vedrines, M. Deperdussin offered the use of his aerodrome at Betheny, near Rheims, for this year's race, and also offered to provide prizes, &c. These arrangements were accepted by the Aero Club of France, but following on the financial difficulties in which M. Deperdussin has become involved, a strong agitation, in which certain constructors have taken a leading part, has been at work to have these plans cancelled. It seemed that this was the general feeling of the Club, and M. Deutsche suggested that the War Office should be asked for permission to hold the contest on Chalons Camp, and he also offered 100,000 francs to replace the cash gift of M. Deperdussin. At a meeting of the Club on Tuesday, however, there was a large majority in favour of holding to the original arrangements, and as a protest Comte de la Vaulx, M. Louis Blériot and M. Alfred Leblanc have resigned as officers of the Club.

Testing a Maurice Farman Biplane.

AT Buc, on the 22nd inst., Fourny was testing a new Maurice Farman for the French Army, and with Capt. Destouches as passenger and a full load he went up to 1,000 metres in 16 min. The next tests were two *vol planés*, with motor stopped, from a height of 400 metres, and landing and starting tests. With a head wind, the machine rose in 45 metres, while, with the wind behind, 82 metres were required. A landing with a head wind was effected in 35 metres, and with the wind behind the distance was 72 metres. The machine rose from an enclosure of 120 metres diameter, and landed in a 150 metre area. The average speed was 95 k.p.h., while the minimum was 64 k.p.h., and the tests were concluded by a flight of an hour and a quarter at a height of 1,000 metres. A similar series of tests, but on H. Farmans, was carried out by Bille.

A Joy Ride for Garros.

ON the 18th inst., Gilbert, on his Rhone-engined H. Farman flew from Buc to Etampes and back, with two passengers, one of whom was Garros.

Testing the Dorand Biplane.

ON the biplane specially designed for military purposes, Labouchere, on the 21st, flew from Dijon to Amberieu, and on the following day was flying over Annesy passing above the Bugey mountains at a height of over 2,000 metres.

Touring on a Farman.

ACCOMPANIED by a member of the French Parliament, Capt. Bares on his Farman, on the 21st inst., went from Paris to Tonnerre, the journey being none too easy on account of the rough weather. The next morning a further 120 kiloms. were flown to Dijon, while in the afternoon another flight of 140 kiloms. took them to Portailier.

Visiting by Aeroplane.

HAVING accepted an invitation to a party at the Château d'Abondant, near Dreux, the Marquis de Lareinty-Tholozan flew there from Buc on his M. Farman, on the 18th inst. A large number of the party were given trips in the air, and one of them accompanied the Marquis the following morning when he returned to Buc.

Two Double Fatalities in France.

COMTE DE MONTALENT, who together with his mechanic was killed during the race from Paris to Deauville on Sunday, will be remembered as one of the competitors in the Circuit of Britain of 1911. On reaching Rouen the machine was seen to be unsteady, and it finally capsized. The biplane dived vertically to the ground, and both pilot and mechanic, Metivier, were pitched out. The former crashed on to a barge and was instantly killed, while the latter fell on to the banks of the Seine and died soon after being picked up.

On Monday Lieut. Sensever, accompanied by Sapper Laforgue, was flying at Villacoublay, when the biplane suddenly pitched forward and dived, with the engine running, from 200 metres to within 30 metres of the ground, and then collapsed, the wreck falling within a short distance of where Capt. Taron met his death two years ago. Both pilot and mechanic were killed on the spot.

Testing a Parachute for Aeroplane Pilots.

FEELING such confidence in his safety parachute for aviators, as the result of the tests made with dummies, M. Bonnet arranged with M. Pegoud to carry out a practical test at Buc. There were difficulties, however, as the police got to hear of the projected trial and promptly prohibited it. An appeal to the Mayor, however, secured the necessary permission, and, on Wednesday week, Pegoud and Bonnet rigged up the safety parachute on an old monoplane fitted with a 5-cyl. Anzani engine. The machine started off, and after attaining an altitude of somewhere about 200 metres, the pilot released the box containing the parachute, stopped the motor, and put the aeroplane in a diving position. The parachute filled out in a second or so, and lifted the pilot from the machine, which, relieved of the weight, glided upwards, turned over, righted itself, and then glided to earth. The pilot was slowly carried by the parachute down the valley, and eventually gently deposited in the top branches of a tree, from which position he was able to make his way to the ground, none the worse for his adventurous, to use but a mild epithet, exploit.

A Busy Week-End.

MAURICE FARMAN, on the 15th inst., took Dr. Rigal from Buc to Riviere Thiberville (Eure), and returned to Buc in the evening, and the next day, with his brother Dick, went to visit Henry Farman, who was staying in the neighbourhood of Vernon, while on the Sunday he flew with Doncker across to the school at Etampes and then returned.

Fine Flying on a Farman.

ON his new Farman biplane, on which he hopes soon to fly across the Sahara to Timbuctoo, Lieut. Cheutin, on the 21st, flew from St. Cyr to Versailles to Guerigny in order to visit his mother. Later he continued his journey with a sapper to Nevers.

British Officer at Borel School.

ON the 19th inst., Lieut. Brown, R.N., arrived at Buc in order to undergo a course of instruction at the Borel School.

More Deps. for French Army.

AT Betheny, on the 20th inst., Prevost put seven Deperdussins through their delivery tests. These machines are for an escadrille to take part in the manoeuvres and each one carries supplies sufficient for a 4-hour flight.

Testing the "Icarus."

DURING some tests on the 20th inst. the great Voisin flying boat, "Icarus," belonging to M. Deutsche (de la Meurthe), with four persons on board, rose to a height of 50 metres.

Fourny Trying for Michelin Cup.

FOURNY, who holds both the world's distance and duration records, is making a bold bid for the International Michelin Cup, and on the 22nd inst. he flew from Buc to Etampes on the machine he proposes to use on Monday he made seven rounds of the Etampes Gidy course and another seven rounds were made on Tuesday.

Farman's for Sweden.

BEFORE a deputation of Swedish officers at Buc on Saturday, Bille was testing a Farman ordered by the Swedish Government. With a full load of 280 kilogs., it rose 500 metres in 5½ mins., and easily fulfilled all the other stipulated tests.

A Nieuport Superior Pilot.

ON Monday de Neufville completed his practical tests for a military pilot certificate, flying his Nieuport monoplane over the Villacoublay-Chartres-Orleans circuit.

Flying Across the North of France.

ON Monday morning Lieut. Cassin, accompanied by a sapper, landed at the Beau Marais aerodrome, having flown over from Mourmelon, with stops at Etampes, Rouen and Crotoy.

A German Prize Won.

LAST week, at the Halberstadt Aerodrome, Kaniss won one of the national prizes—£240—by flying with a passenger for three hours.

Chevillard in Italy.

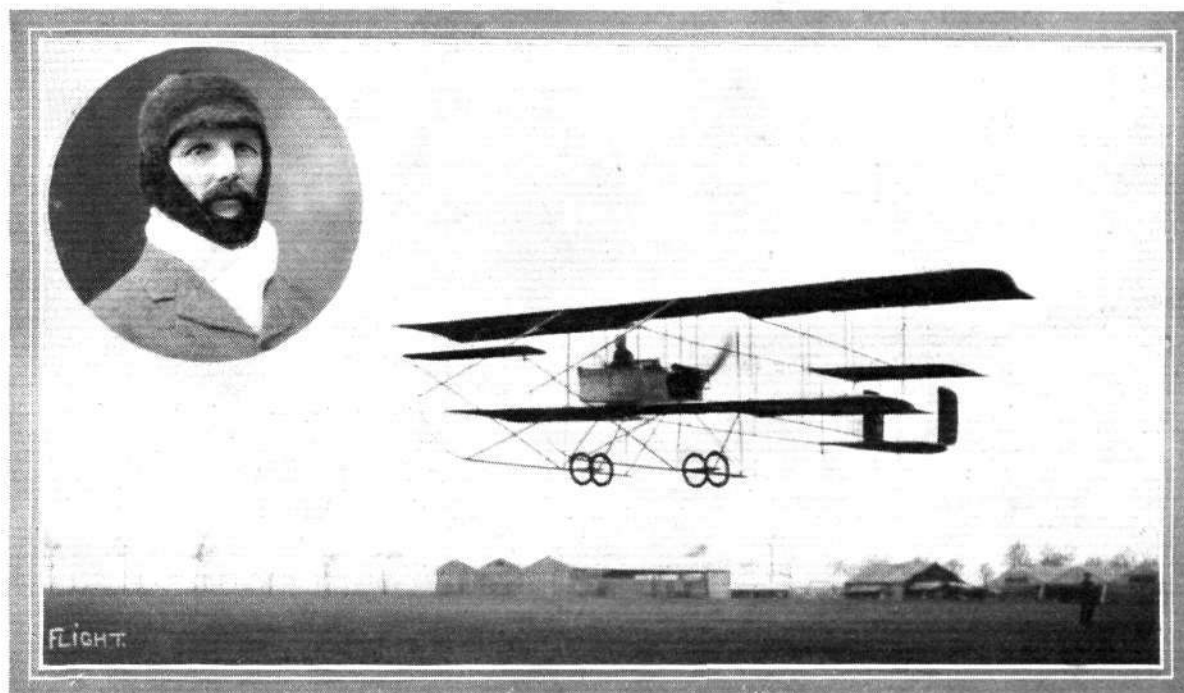
WITH Mr. Lawrence Santoni as passenger, Chevillard, on the 19th inst., at Pordenone, carried out tests with the first of a series of M. Farman's ordered for the Italian Army. About 100 officers from Pordenone and Aviano witnessed the tests, which included a flight of two hours at an altitude of 1,500 metres, and rising 1,000 metres in 15 mins.

Flying Corps for Norway.

FOR the new Flying Corps which is being organised by the Norwegian military authorities, Capt. Tanlow has been appointed Chief of Tactics, while Capt. Sem Jakobsen will be the director of the Technical Department.

Aeroplanes at Russian Review.

AT the review held at Krasnoie Selo on the 10th inst., at which the Tsar was present, fifteen aeroplanes took part. While the troops were manœuvring, the machines, which included 11 Nieuports,



Mr. J. Welby Madeley, M.A.M. Inst. C.E., who passed for his pilot's certificate on August 22nd at the Farman School, Etampes, France. The Maurice Farman, with Mr. Madeley in the pilot's seat, is also seen above. He intends continuing his training, and is taking back in September a Maurice Farman to Madras where Mr. Madeley is Special Engineer to the Corporation of that city.

Night Flying at Berne.

ON the 19th inst., after nightfall, Bider, on his Blériot, was flying over Berne and its environs for 25 mins.

Aeroplanes in Belgium Manœuvres.

EIGHT aeroplanes are taking part in the Belgian Army manœuvres in Luxembourg, and these made the journey from the Brasschaet aerodrome to Namur on Monday, stopping *en route* at Louvain.

Long Flight in Germany.

AT the conclusion of the Gotha Meeting, in which he had taken part, Stoeffler, accompanied by Capt. Berchtold, on the 22nd inst., flew on his Albatross triplane to Strasburg, a non-stop flight of 350 kiloms.

To Distinguish Competitors in Berlin Race.

SO similar in general appearance are a number of the machines taking part in the Round Berlin Race that the organisers have had to consider a means so that the timekeepers may identify them. It has now been decided to fit guns to each machine which will fire rockets in various colour combinations when passing the various controls.

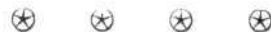
Fatal Accident in Germany.

WHILE flying a monoplane at Halberstadt on Friday of last week, Lieut. Schmidt was apparently caught in a *remous* at a height of about 500 metres. He had come down by a steep *vol plané* from a height of 1,000 metres, when the machine capsized and dropped to the ground.

3 Farman's and a Wright, carried out a series of flights. Sikorsky's giant biplane was on the ground and, after the review, was closely inspected by the Tsar, who subsequently saw the machine in the air carrying several passengers.

An Algerian Record.

FROM Oran it is announced that on Sunday last Servies, on a Deperdussin-Gnome, with a passenger, flew 125 kiloms., a distance record for Algeria.

**British Navy and Forlanini Airship.**

DURING the week-end several trial trips of three hours' duration have been made with the latest Forlanini airship, and among the passengers taken up was Capt. Murray Sueter, Director of the Air Department at the Admiralty, who, with Engineer-Lieut. Aldwell, is paying a special visit to Milan to obtain full particulars of the airship. The envelope of this latest airship is of 400,000 cubic feet capacity, and along three-quarters of the bottom side there extends a girder structure which comprises the cars, &c.

The New Clement-Bayard Airship.

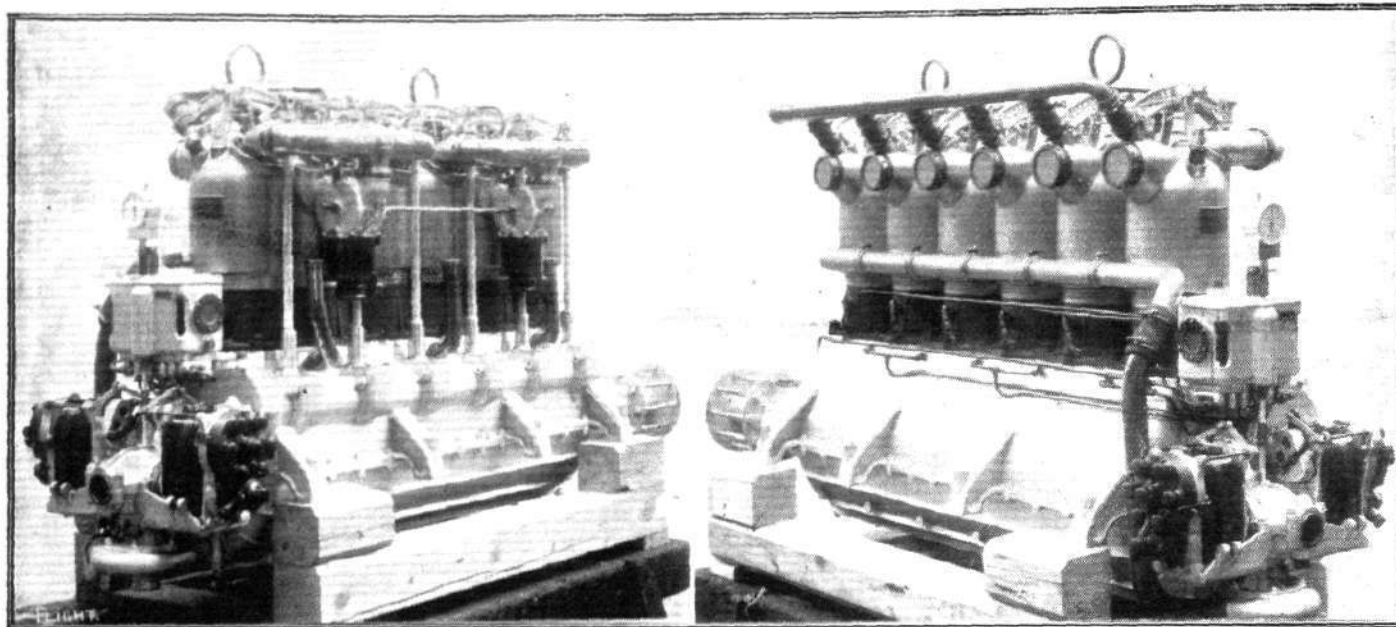
ON the 21st inst. the "Clement-Bayard VI" had two trial trips. In the first, with eight persons on board, she cruised over Rethondes, Franceport, Choisy-Bas, Compiègne, Vieux-Moulin and Pierrefonds, and after being in the air for just on two hours a fine descent was made by the aid of the special horizontal propeller. In the afternoon another trip of about one hour's duration was made, and among the passengers was Col. Bouttieaux.

THE AUSTRO-DAIMLER AERO ENGINES.

It will readily be admitted that the Austro-Daimler engines have established an enviable reputation in this country in spite of the fact that the number in use here is small. They have given rise to a feeling of confidence on the part of those who use them, than which it is difficult to say anything more in praise of a motor for aeronautical work. Abroad they have been much more in evidence and

friction on the cylinder walls is inconsiderable. During the firing stroke, when the pressure on the piston is at a maximum, the lateral thrust on the cylinder wall is diminished by the comparatively small obliquity of the connecting-rods due to the *décalé* setting.

The bore of the 120 h.p. A.D. engine is 130 mm., and the stroke 175 mm.; its normal speed is 1,200 r.p.m., and its weight inclusive



The 120 h.p. Austro-Daimler engine.

equally successful. In 1910 an Austro-Daimler won £800 for Ilner, who was driving an Etrich monoplane; in 1911, no fewer than eight important prizes stood to its credit; and in 1912, in addition to the victory in the British Military Aeroplane Trials, it won the world's height record for 14,300 ft., and the record for the fastest climb, which was at the rate of 525 ft. a minute to an altitude of 3,280 ft.

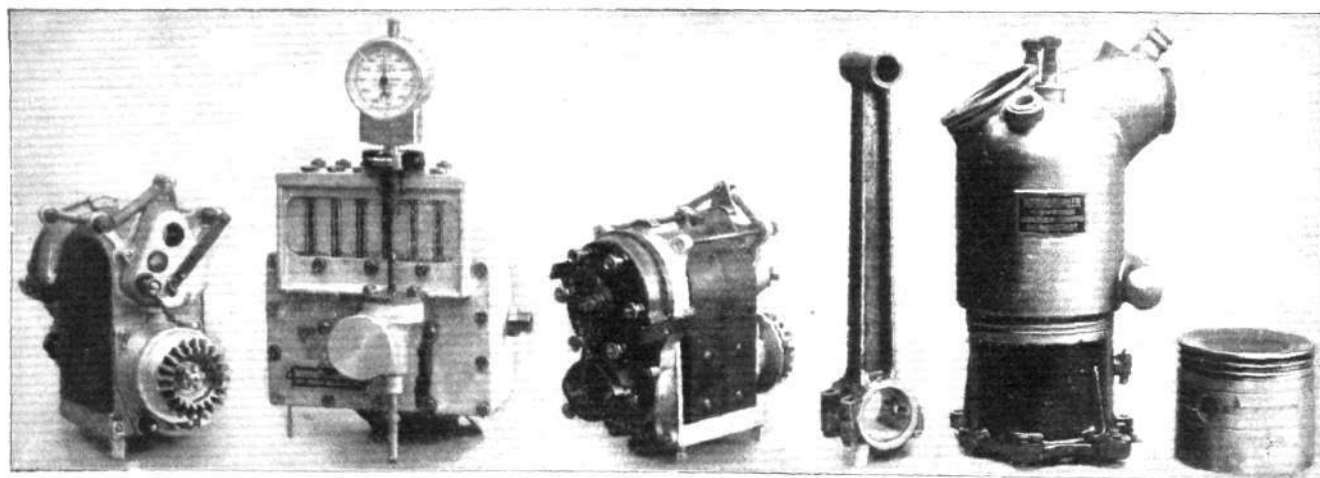
In the manufacturers' official list four models are quoted, but with the modern tendency towards high powers only the two larger are of much practical note to aviators at the moment. The largest engine is the 120 h.p. model, which is sold for £850 complete. It has six cylinders, which are separately cast in accordance with the standard practice of the company, and have copper water jackets deposited electrolytically on the iron.

The cylinders are set *décalé* over the crank-shaft, that is to say

of the radiator is 450 lbs. approximately. The valves are set diagonally in the cylinder-heads, the exhaust and inlet being both operated by the same rock lever, which is controlled by a push and pull rod from the camshaft. Leaf springs arranged below the rock-levers, and carried in the same brackets, serve to hold the valves on their seats.

Two water-jacketed carburettors serve the six cylinders with mixture, and two independent high-tension magnetos take charge of the ignition.

The crank-shaft is supported on seven main bearings, and pressed steel pistons are employed in order to reduce the weight of the reciprocating parts as much as possible. Each connecting rod big end dips in a separate oil trough, which is supplied with lubricant by a pump. The consumption amounts to only .025 pint per h.p.



Some of the parts of the 120 h.p. Austro-Daimler engine.

the centre line of the cylinder is displaced a little from the vertical plane containing the crank-shaft, the displacement being in the direction of rotation, so that the connecting-rod is less oblique during the firing stroke. During the exhaust and compression strokes the obliquity of the connecting-rods is greater than usual, but the pressure on the piston being small, the lateral thrust causing

per hour approximately. The petrol consumption is about .6 pint per h.p. per hour.

Ball races to take the propeller thrust are fitted in an extension of the crank chamber, and provision is made for starting the engine from the pilot's seat.

The 90 h.p. model is built on similar lines to the 120 h.p. motor,

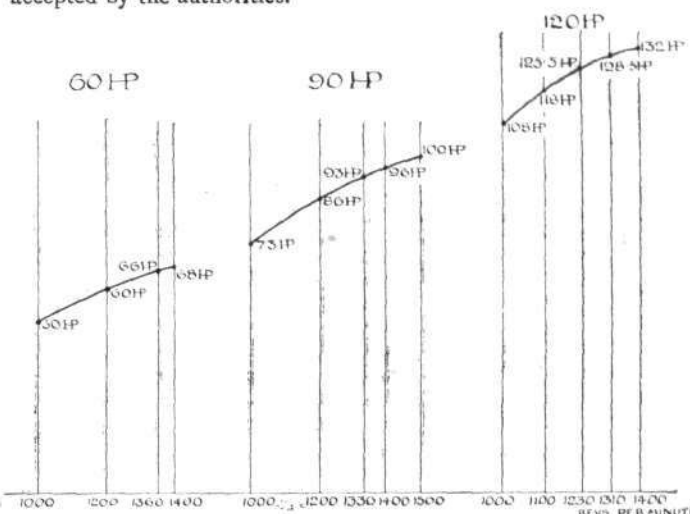
but the cylinders have a bore and stroke of 120 by 140 mm., and run at 1,300 r.p.m. normal speed. The weight, including radiator, is 360 lbs., and the price complete £625. The petrol and oil consumptions per unit of power are the same in both engines; two carburetors are also employed on the 90 h.p. model, but the ignition is served by one Bosch magneto fitted with a double distributor.

In the sizes below the 90 h.p., which include the 65 h.p. and the 40 h.p. motors, only four cylinders are used. The bore and stroke of the 65 h.p. engine is 120 mm. by 140 mm., the normal speed 1,350 r.p.m., the weight 255 lbs., and the price £495. In the 40 h.p. model the corresponding figures are 100 mm. by 120 mm. for the bore and stroke, 180 lbs. for the weight, 1,450 r.p.m. for the normal revolutions, and £315 for price.

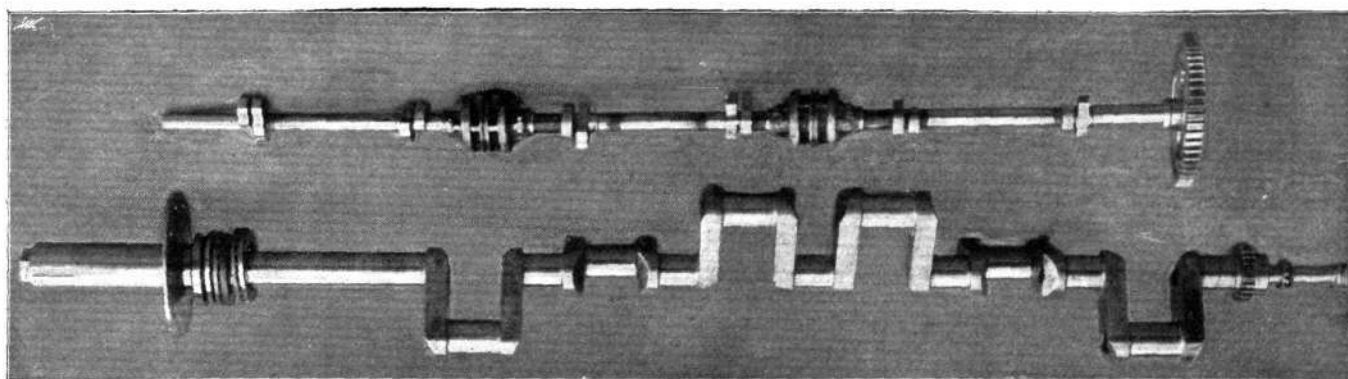
On test, conducted under the direct supervision of the Austrian Army, the 90 h.p. model delivered its stated power on the dynamometer at 1,310 r.p.m.; it was then fitted with its propeller, and ran for 20 hours under full load at an average of 1,320 r.p.m. without stopping.

At the end of this run the engine was examined, and, having been found to be entirely in good condition, and requiring no adjustment, was restarted for a further run of 20 hours under full load at the same average speed. At the conclusion of this period the engine was again connected up to the dynamometer, tested, and found to be giving the same power as it did before the test. It was then dismantled, and having, as the result of very careful

inspection, been found to be in perfect condition, it was finally accepted by the authorities.



Power curves of the 60 h.p., 90 h.p. and 120 h.p. Austro-Daimler engines.



The cam-shaft and crank-shaft of the 120 h.p. Austro-Daimler engine.

ROYAL FLYING CORPS (MILITARY WING).

WAR OFFICE summary of work for week ending August 23rd:—

No. 1 (Airship) Squadron. South Farnborough.—The early part of the week was devoted to rigging "Eta," and to overhauling the engines of "Beta." "Eta" was out on three days, carrying out various trials. On the 20th she towed the Naval airship No. 2 from Odiham to Farnborough. "Beta" was flown to Tidworth and back (120 miles) on the same day. On the 21st "Beta" was taken to Wraybury, where she remained two nights. She returned to Farnborough on the 23rd.

No. 2 (Aeroplane) Squadron. Montrose.—BE's and Maurice Farmans were out daily throughout the week. Capt. Longcroft tested a new BE on the 16th at Farnborough, and flew this machine to Montrose on the 19th, with the Commanding Officer as passenger. One landing only was made—at Alnmouth—to replenish with petrol and oil. The journey of about 530 miles took 7 hrs. 40 mins., exclusive of the time spent at Alnmouth. The first part of the flight breaks the existing world's record for flight with a passenger. The machines of the Squadron going to Ireland are now ready for the flight there, preparatory to taking part in the Irish Command manoeuvres.

No. 3 (Aeroplane) Squadron. Netheravon.—Several long cross-country reconnaissance flights were made by officers of this squadron during the week. Work in the observation of artillery and rifle fire was carried out on the 21st. 1,264 miles in all were flown.

No. 4 (Aeroplane) Squadron. Netheravon.—Breguets and Maurice Farmans were out daily carrying out reconnaissance flights. On the 21st, several machines co-operated in a 3rd Division exercise. Major Raleigh flew two Breguets over to Netheravon after they had been tested at Farnborough on the 19th and 20th respectively.

No. 5 (Aeroplane) Squadron. South Farnborough.—All the officer and N.C.O. pilots were flying daily on Maurice Farmans, carrying out reconnaissances and instructional flights.

Flying Depôt (L. of C.). South Farnborough.—Experimental work on BE's and Maurice Farman's was continued.

To Assist General Henderson.

LIEUT.-COL. W. MACADAM (R.E.) has been appointed an assistant director of military aeronautics at the War Office.

The I.C.S. Entente Cordiale Prizes.

WE learn from the International Correspondence Schools that the £700 which they have offered for a race from Paris to London will be divided into a first prize of £500, and a second of £200, while in addition there will be the International Schools Challenge Trophy. It is stipulated that there must be a minimum of ten entries, and at least four, must be British pilots.

Sopwith Batboat Wrecked.

It is indeed a stroke of ill-luck that the Sopwith Batboat which, by its winning of the Mortimer Singer Prize and its subsequent work in naval hands, had proved itself such an efficient machine, should have been wrecked on Sunday. On the previous day Lieut. Spencer-Grey, R.N., had arrived from Southampton, and as the sea was too rough for the machine to be beached it was moored close to the West Pier. It rode out the night splendidly, but the next morning the heavy seas splashed over the boat, and matters were not improved by the wash of passing steamers. It is hardly to be wondered at that eventually the boat was waterlogged. An attempt was made by a party of coastguardsmen to get the craft ashore, but the task was by no means easy, and seemingly in the process the machine struck on a submerged groin, being completely wrecked. It will be seen that the unfortunate happening was really due to no defect in the machine.

A Blériot built by an Amateur.

MR. VINCENT FILL and his 35 h.p. Anzani-Blériot type monoplane are seen in our photographs on page 957. This machine has been entirely built by Mr. Fill in his spare time as a pupil at the Eastbourne Aviation Co's flying grounds. Although assisted by the foreman, all the work was practically done by himself. The machine flies well and Mr. Fowler has himself been up on it for some time. The whole work has been thoroughly well carried out, and does great credit to its constructor, who took his ticket on an E.A.C. biplane about three weeks ago, and he is now learning to fly the machine of his own building.

THE THEORY OF THE DUNNE AEROPLANE.

(Continued from page 939.)

Now, in the ordinary type of machine the lift pressures are distributed comparatively close to a line running transversely across the machine from tip to tip; hence in such a side-view diagram as Fig. 8 we can take them as all concentrated in the neighbourhood of L, and moving as L moves.

In fact, L may be considered as their resultant.

Now I want you to notice two points.

First: That if we were to increase some, and decrease others, of these forces distributed along this transverse line, we might thereby make L smaller or larger, but we would not necessarily alter its position.

Second: That the stabilising back part of the system is the comparatively very small tail plane. Being of a fixed area, its automatic stabilising effect for a given change of angle cannot exceed that of the change in the pressure on that small fixed area.

Now in the machine shown in Figs. 4a and 4b, the lift pressures are not distributed along any transverse line, but along lines sloping back from in front of the centre of gravity to a considerable distance behind it. So that if we draw for this machine a similar diagram to Fig. 8 (see Fig. 9), L becomes the resultant of a number of little L's ranging from in front of M all the way back to N. Again the



Fig. 10.—Front view, with "nose up."

angle of incidence of the wing decreases gradually towards the negative tips, which tips actually form the negative tail, double in this case. These two points will be made clearer if you look at Fig. 4a, which shows the machine travelling straight towards you. So in Fig. 9 the distributed lifts that go to make up the resultant, L, must be shown smaller and smaller as they go aft, until they change their sign and become negative at N. The forward pressures are, of course, greater than those of an ordinary machine, the rearward pressures less, the average being the same. Now, leaving out



Fig. 11.—Front view, with "nose down."

of consideration for the moment what happens to our negative double tail, it is evident that if the angle of incidence of the whole system increases, those lift pressures which are farther from the bow will increase more rapidly than those which are more forward. This is because the farther back they are the nearer is their angle of incidence to the zero angle. Since the rear pressures grow faster than the forward pressures, the resultant of them all, L, goes back, which is the required direction for righting. If, on the other hand, the angle of incidence decreases, it is evident that the rear pressures die out faster than the forward pressures, and the resultant goes forward. Thus, quite apart from what the negative tail-tips may be doing, the whole of the lifting part of the surface is utilised to assist in this manner the righting travel of L.

But besides this, look what happens to the negative tail-tips. Figs. 4a, 10, and 11 show the machine flying straight towards you. The negative part is that part where the upper surface is exposed to the flight line towards your eye. In Fig. 4a the mean angle of incidence is normal. In Fig. 10 it is greater than normal. Notice that not only is the negative part at a less negative angle, as happens with any ordinary negative tail, but also that its area is greatly reduced. In Fig. 11 the mean angle of incidence is less than normal. Note that not only is the angle of the original part of the tail-tips more negative than before, but also that the area of the negative tail is now enormously greater.

Here for a moment we may pause and sum up the advantages we have gained over the ordinary tailed machine with its tail disposed so as to give longitudinal stability. In both cases we have the tendency of the final centre of pressure to travel wrongly owing to the centre of lift on each curved section travelling wrongly. Opposing this we have in both cases the changes in the amount of the pressures on the normal tail portion. But in our case we have in addition, assisting the correct travel of the centre of pressure, the change in the proportions of the entire distributed lifts on the backwardly-extending main surfaces, and also the change in the area of the negative tail-tips.

This latter effect may become enormous. In the case of a dive

at an angle of incidence which in an ordinary machine would be less than zero, and put the whole of the main wings under top-pressure, the front part of our machine would still be lifting, while three-fourths of the entire area would have become negative-pressure tail.

A nose dive is therefore impossible. Moreover, the righting couple is so powerful, even for minute changes of the angle of incidence, that you can safely build the machine with any longitudinal moment of inertia that it is possible for you to obtain under practical conditions of construction.

All this is obtained without the necessity of introducing anything out of the way in the shape of non-lifting tail-tip surfaces in ordinary normal flight. For the tail-tips remain a convenient size until they are required to compete with exceptional disturbances. And, being placed at the side of the forward surfaces instead of trailing in the disturbed air behind them, they are more efficient, and so do not detract so much from the general efficiency of the whole system. Note that every single rib of the machine is in the position of a stabilising tail to those diagonally in front of it.

We have considered three separate longitudinal stability devices. These are:—

- (1) Change in unit tail pressure. (The ordinary "Vee.")
- (2) Change in diagonal distribution of lift.
- (3) Change in tail area.

There remains yet a fourth, perhaps the most important of all. This is a veritable safety device, quite supererogatory to stability, and perhaps the best name for it is the "reserve tangential" device.

If you look back to Fig. 9, you will notice that I have drawn all the vectors parallel to one another and normal to the supposed plane of the wings. This was for the sake of simplicity in dealing with the device we were investigating at the time. But as a matter of fact

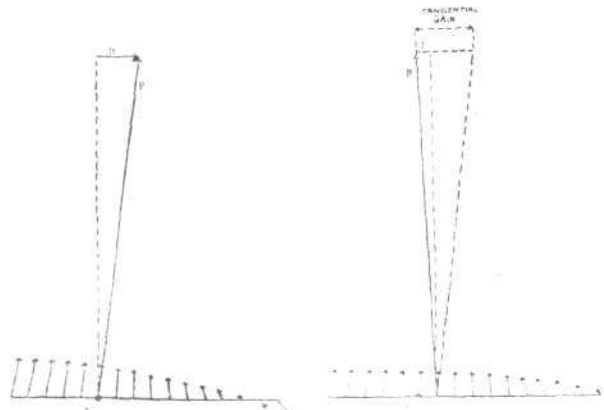


Fig. 12.

Fig. 14.

every rib of the machine has a different angle of incidence, and the vectors should properly be drawn as in Fig. 12, that is to say, as we work back from the bow the vectors not only become smaller and smaller, but also change gradually from backwardly-inclined attitudes to upright and finally to marked forwardly-inclined attitudes. Since the more forward and more backwardly-inclined



Fig. 13.

vectors are the longer, the resultant of the whole lot, including those which are negative, will be also backwardly-inclined. We may show it as P, and it is obvious that it has a backward component, D.

Now, supposing the machine to be climbing steeply or planing at too flat an angle, so that it begins to lose speed and so lose lift. It then begins to sink, and *ipso facto* increases the angle of incidence. This, as we have seen, is sufficient in any machine with a good longitudinal "Vee" (and especially in this machine) to cause the centre of pressure to move back, tilting the nose downwards so that the machine recovers speed. The flight path due to this action alone would be somewhat as shown by the full line in Fig. 13. The sharp descent (first pancake, and then dive) to recover lost speed might evidently have dangerous results if the ground happened to get in the way. But in our machine the increased angle of incidence produces a secondary effect. We have seen that the vectors towards the rear part of the wing increase at a greater rate than those more forward, thus moving the resultant back. But

since these increasing vectors are inclined more forward than those in the more advanced portion of the wing, the resultant, besides travelling back, also takes a decidedly more forward inclination, and becomes somewhat as shown in Fig. 14. Instead of the retarding component, D, of Fig. 12, we now have the propelling component, T, and this is just enough to carry the machine over the crest of the phugoid, and save the steep plunge down the other side. As a result such descent to recover speed as may be necessary is done at a decent easy angle, somewhat as shown by the dotted line in Fig. 13, instead of in a highly dangerous combined pancake and plunge. In brief, this reserve tangential affords an ever-available and entirely automatic means of temporarily increasing the speed in emergencies without the immediate necessity of diving. The effect this has on the smoothness of the flight-path in high winds is quite amazing when first experienced.

One curious result of this reserve tangential—curious, that is, to the spectator—is the ability of the machine to maintain itself under full control at apparently impossibly large angles of incidence.

These four longitudinal devices, utilising as they do the entire aeroplane surface, probably confer the maximum longitudinal stability obtainable, and *prima facie* considerably greater than that which can be obtained by the manipulation of small subsidiary surfaces attached to a main unstable surface. The directional stability also we have seen to be very considerable. Let us now examine the effect of these two properties in a state of affairs where the machine is tilted sideways.*

Since the days when Wilbur Wright first showed us what banking really meant, every student of aeronautics knows the old diagram shown in Fig. 15. Here AB is a front or back view of the tilted plane, P is the air-pressure, G is gravity, and R the resultant of P and G. The force f is the centrifugal force necessary to balance

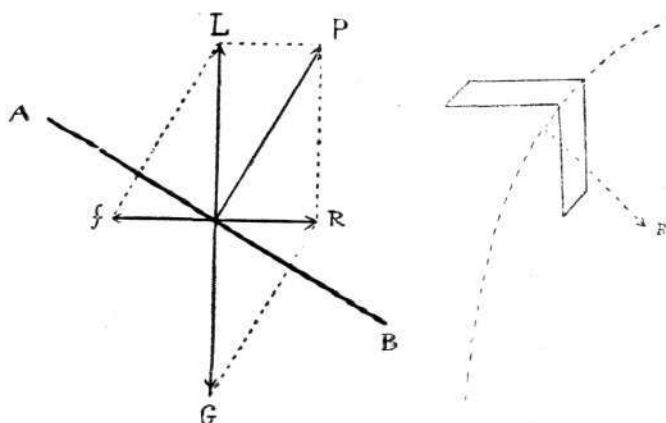


Fig. 15.

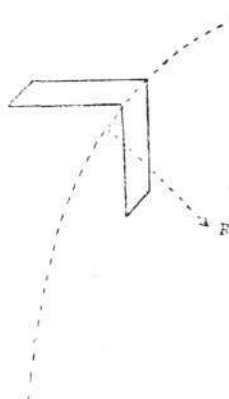


Fig. 17.

R; or, looking at it another way, f and P together have the resultant L which balances gravity. If that force f can be obtained, the system is in equilibrium, and the necessary support against gravity is maintained. Lacking that force, there is neither equilibrium nor a continuity of support, and the machine must fall, *no matter what the reserve of power*. Recovery there may be, due to a magnificent sideslip bringing some fin- or dihedral-angle effect into operation, but our object is to maintain steady equilibrium throughout the flight and adequate support at all times, and we particularly want to avoid these falling, slipping, rolling evolutions. Therefore, the equilibrating centrifugal force f must be obtained at all costs, which is equivalent to saying that the machine must be made to revolve about some such axis as N . (See Fig. 16.)

Now the revolution about the axis N , with radius r , and angular velocity ω , and centrifugal force f , can be resolved into two simultaneous revolutions, one about the axis X with radius r_1 , and angular velocity ω_1 , and the other about the axis Y , with radius r_{11} , and angular velocity ω_{11} . The centrifugal forces due to these simultaneous revolutions are respectively f_1 and f_{11} , which combined have the resultant f . The revolution about the axis Y is in this case evidently a purely directional manoeuvre, due to tail or fin or some equivalent. The revolution about the axis X is a movement of elevation involving a longitudinal manoeuvre.

In order, therefore, that the aeroplane shall revolve round N following the path a , a_{11} , a_{13} , and so produce the requisite force f , it is necessary that it shall have sufficient directional stability to follow with its bow the lateral deviation in the trajectory of its mass induced by the lateral component of R (Fig. 15), and sufficient longitudinal stability to follow with its bow the upward deviation in the trajectory of its mass induced by the upward component of

* As if, for example, it were deliberately banked over by the use of the ailerons, which were immediately afterwards returned to their normal position.

R.† The machine under discussion fulfils, as we have seen, both these requirements.

This resolution of the turn into two components is not necessary unless we want to understand in detail exactly what is happening. For a general comprehension of the idea, Mr. Berriman's lucid statement that, granted "weathercock" stability, a machine will follow with its nose any deviation in its trajectory induced by R, is less complicated. But I have shown the full analysis, in order to introduce to aeronautical students this method of resolving banked turns into components in the planes controlled respectively by rudder and elevator. It enables you to see what is actually happening, without the usual necessity of assuming some complicated interchange of the relative functions of these organs.

We have it then established that if the machine be in a tilted position with one wing lower than the other and all controls normal, it will commence to circle towards the depressed side. Fig. 17 shows the aeroplane circling thus, seen from above. I have shown the machine as heading straight into its curved path, and it will presently be obvious that such a position cannot be maintained.

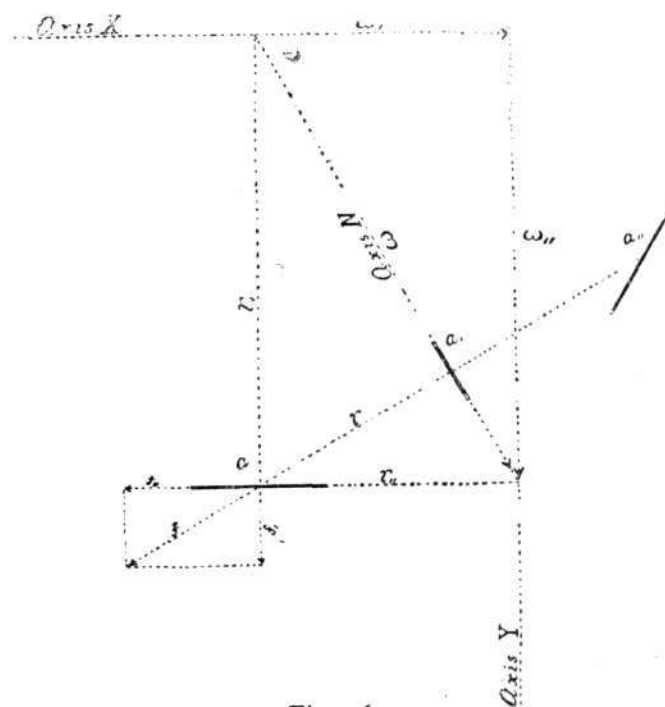


Fig. 16.

In the first place the outer wing in order to keep up would have to travel through a greater arc than the inner wing in the same time, and so overcome greater resistance. Obviously this outer wing will tend to lag behind.

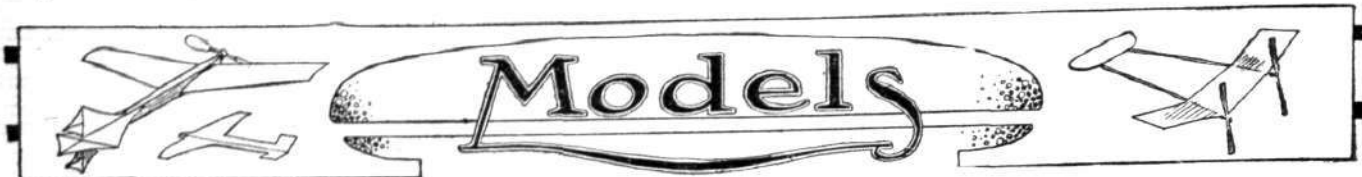
In the second place the outer wing would tend to be depressed, and this for two reasons. First, the pressure increases gradually towards the outer tip, because the arc described by each portion of the wing increases in length as you travel out towards that tip. And, as the pressures increase, so are they applied to less and less positively inclined portions of the wing, till at the outer part, where the pressures are greatest, the tip is actually negatively inclined.

Now, in the early days of my experiments, I used to think that this negative inclination of the outer and faster-moving tip was sufficient to account for the fact that the machine—if turned by an ordinary rudder—depressed the outer wing. In this I was wrong. Later quantitative analysis of the positive and negative couples showed at once that, with the small amount of negative surface we use, the counterbanking couples were utterly insufficient to balance the banking couples due to the increased pressures on the lifting parts of the outer wing and the shortage of pressure on the inner negative tip. In this I believe I have the support of Mr. Hume Rothery, who calculates that in order to obtain a counterbanking result one would require to have a quarter of the negative surface inclined so as to come under negative pressure. I think it would be impracticable to do this with the class of machine and motor we have at our disposal at present.

But if a practicable negative tip does not produce sufficient counterbanking, we must look for something else in the construction which supplies the deficiency.

† *i.e.* It must elevate as the angle of incidence is reduced by this upward deviation.

(To be concluded.)



Edited by V. E. JOHNSON, M.A.

Model Flying in Different Localities.

MR. R. B. C. NOORDRYN writes us as follows: "I read Mr. J. C. Balden's letter in FLIGHT of August 16th last, *re* duration records, with some interest, as I have been struck by the difference in model flying in England and Holland in the same way as he has with respect to England and Scotland. Mr. Balden's statements exactly agree with my experience: that there is something in the atmosphere of different localities that makes a difference in the duration obtainable with a model. Now, the only thing I can think of, in which Holland and Scotland are similar, in contrast with England, is dampness. Fortunately, I have been able to carry out a test, as suggested by Mr. Balden. In 1912 I brought over two machines from Holland, both 'limit' machines built for record work. One of these was absolutely decrepit, and in Holland, on the low-lying fields, would not climb at all. Without altering it in the least, old rubber and all, I obtained quite good and high flights in England. The second was a new machine of the same type of which the Dutch record was 67 secs., still unbeaten, while in England I obtained about 80 secs. So we have stopped wondering at the English records in comparison with our best efforts, although we think them fine performances also. A Dutch pilot told me, he was troubled with the same thing in full-sized flying, the machine being one of the old fantail Bleriot's with a very 'tired' 50 h.p. Gnome, just about sufficiently powerful enough to keep it going, this machine flying noticeably better in the hilly eastern part of Holland than in the low-lying western part.

"It is the difference in sunny and cloudy weather which was noted in FLIGHT some time back."

Ornithopter Competitions.

For the K. and M.A.A. competition for model ornithopters, held on Wimbledon Common on August 23rd, not a single competitor put in an appearance. Some five or six had entered, but *presumably* found themselves unable to accomplish the qualifying test of 100 ft., and so considered it useless to trouble to come. Although the conditions and rules have been already published in FLIGHT, we think that, under the unusual circumstances, the chief ones will bear repetition and some remarks as well. In the first place, only models in which main supporting surfaces flapped were eligible; also they must have no rotary propeller, no trade models were eligible (not that this latter condition made any difference), and the length of flight was to be measured in a straight line from starting point to alighting point. The prize was a monetary one—£5 in value. To be strictly accurate, this is the second year that this has been offered; but last year, if we remember rightly, the competition was postponed.

Now, whether "Flapping Flight" be mechanically feasible on a full-size scale or not, it is very certain—as exemplified in the case of birds—that it is a wonderfully "efficient" form of flight. Again the competition was essentially a scientific one. Now, that such a competition should meet with such poor support and a result absolutely nil, is something more than disappointing. In a sense it is disastrous; and it is certainly a subject for very careful and unbiased enquiry. Now, in the first place, it was undoubtedly quite a new problem to be tackled, and one in which the aeromodelist would derive but very slight assistance indeed from his experiments with and knowledge of propeller-driven models. It was a subject then requiring both time and experiment—very probably considerable time and many experiments. Taking then quite a businesslike view of the subject, and regarding it solely from a matter of £ s. d., we can very easily see that a competitor who tackled the competition in a serious and fairly comprehensive manner likely to lead to success, would, even if the winner, actually find himself out of pocket in the end. Five pounds goes a very little way when experimenting on some new idea even in the case of models only. Until the value of the prize is raised we are afraid the competition will never be held.

A Competition for Helicopters.

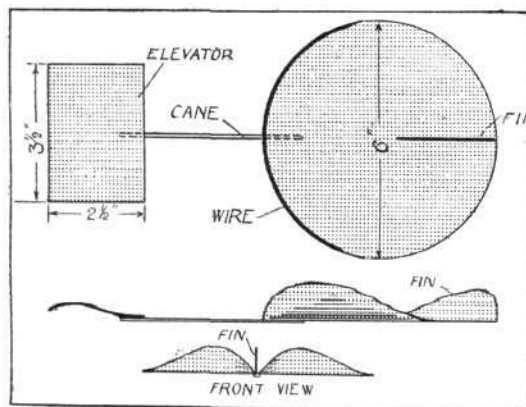
Some two years ago the writer endeavoured to promote a competition for the above. Somewhat to his surprise the idea was treated with nothing more or less than ridicule. Perhaps I endeavoured to promote it in a wrong quarter—in an atmosphere where such was regarded only as a butt for sarcasm. It is certainly true that I have seen helicopters which fully deserved such, but to brush aside all endeavours in this direction with the same station-

like brush of sweeping assertion is ridiculous. I know quite well the theoretical considerations that can be brought forward against it. But in the case of the aeroplane destined to rise from and alight on the surface of *rough* water we are face to face with a problem which, as has now been pretty clearly demonstrated in the case of full-sized machines, cannot be solved by any ordinary type of hydro-aeroplane, hydroplaning—in the proper sense of the word—being simply impossible in really rough weather. Now that nation which possessed "seaplanes" (to use a common but quite incorrect word), which could do this, would possess a weapon of both offence and defence of no mean value, and it yet remains to be proved that the principle of the helicopter directly or indirectly is not going to be the one which shall carry this problem to a successful solution. During the next ten or twenty years tens of thousands of pounds will undoubtedly be spent in this country in endeavouring to solve this problem with experiments conducted with full-sized machines. It would be, I suppose, too much to hope that some far-seeing and public-minded person or body of people will come forward prepared to spend a few hundreds only in experiments with models with the same object in view. By models I do not mean small rubber-driven ones of only a few ounces in weight, but power-driven machines from 10 or 15 lbs. up to 30 or 40 lbs. in weight.

Foreign nations are taking up model aviation work, and it is very certain that they are not going to confine their efforts to merely seeing who can obtain a few yards more distance or a few seconds more duration, by means of the absolute limiting number of turns that can be got out of a number of strands of unduly strained rubber, distorted to breaking point.

The Theory of the Dunne Aeroplane.

Mr. G. E. Lehrs sends the following communication with respect to the above: "Under the above heading in your issue of FLIGHT, August 16th, you gave some diagrams which remind me of some experiments with a model I made some three years ago, and the shape of which I illustrate herewith to the best of my ability. This model was quite circular in form, the disc being 6 ins. in diam., made of thick white paper stiffened on the front edge for about one-third of the circumference with strong wire, and bent to the shape shown in the diagram. A small elevator was attached by means of a cane in front and an upright pin at the rear. This model glides beautifully, and I frequently obtained glides of 50 to 60 yards from a building 30 ft. in height. On one occasion I launched this model from the fourth story of a high building with the idea of obtaining a record glide. The model, on leaving my hand, seemed to remain stationary in the air, then suddenly turning parallel to the wall of the building, continued gliding for a distance of 80 yds. along the wall, keeping a

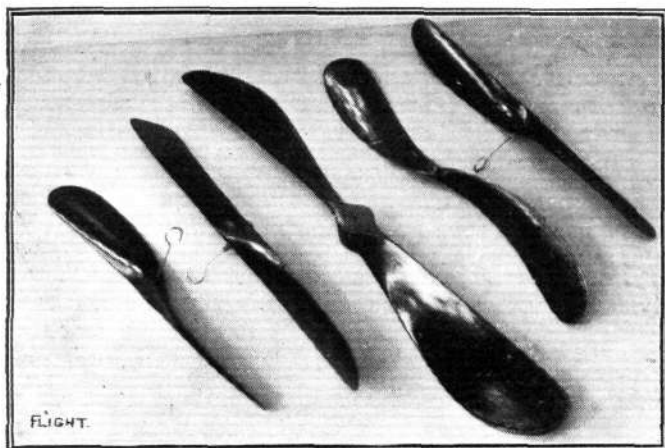


yard distant from the wall nearly the whole of the glide. It surprised me much to see the model actually rise higher and higher, and the last I saw of it was when it appeared to skip over the ledge of the roof. I account for the latter performance by the fact that it was a very hot afternoon, and though the model weighed 1 1/2 oz., the upward current of warm air was strong enough to raise it to the level of the roof. At any time I should be pleased to make such a model should it be of interest to you. Perhaps some of your clever readers would make a model of this description power driven? I may add that I read your journal with ever-growing interest, and wish you an ever-increasing success."

A gliding angle of 1 in 6 is by no means uncommon; some gliders I have made have accomplished 1 in 9 and 1 in 10, in one case 1 in 12, and this is nothing out of the common even in calm air. I am afraid the lifting efficiency of the round plane is not sufficiently good for any possessor of a power-driven plant to care to experiment with it. The glider undoubtedly might be carried upwards on the warm rising current of air given off by the heated bricks of the building; but the fact that it disappeared over the roof renders it far more likely, in my opinion, that it was carried over on the rising current of air passing up the side and over the roof owing to the direction in which the breeze (no matter how light) was blowing. I have seen this happen dozens of times, even in the case of heavy self-propelled models when flying straight for the building. —V. E. J.

The Star Aeroplane Co.'s Propellers.

We give this week an illustration (reproduced from a photograph) of some propellers which we have in our possession made by the above firm. The largest one—a 16-inch Chauvière type—we have



Some examples of the "Star" Aeroplane Co.'s propellers.

tested on a suitable power plant, and found it quite as efficient as any other of the same diameter and type which we have tried, and certainly more efficient than most other types.

The two 12-inch diameter propellers were built to a specification supplied by the writer, and were used purely for experimental purposes. The specification given had been quite correctly carried out, and the propellers were in addition quite correctly balanced and thoroughly well finished. The smallest pair are a couple of very

light carved propellers of somewhat 'coarse pitch, of a type now so much in vogue. All the propellers are quite true, correctly carved to shape, and accurately paired.

A HYDRO-AEROPLANE COMPETITION FOR THE BEST ALL-ROUND MODEL.

A proposal has been made to the editor of this section for a competition run on the above lines in which the factors of either duration or distance shall cease to be the preponderating ones, and he has been asked to draw up a series of suitable tests. This he is quite willing to do, and as such a competition cannot be held, or at any rate runs no chance of being a success, unless something adequate in the way of prizes is offered, he has much pleasure in opening a fund for the same with a subscription of £1. The tests which he would propose are the following:—

1. Every model to be first examined by the judges, and so many marks allotted for design and construction.
2. Twin-screw models to make a qualifying duration of 25 secs., single-propeller machines of 15 secs.
- Other than the above, the models to make no further tests for duration, but in test 2 the judges will take into account and allot marks for the climbing abilities exhibited by the models.
3. Longitudinal and lateral stability, observed during test 2, or during an additional flight. This point to be left to the discretion of the judges.
4. Ability to run along the water without rising, the model in this case being required to make a run along the surface of the water of at least 50 yards without rising, with planes, &c., attached. Taxi-ing test.
5. Hydroplaning test. The lifting surfaces to be removed, and the model to make a run along the surface as a hydroplane only; the rubber motor to be fully wound up.
6. Steering test. The planes to be replaced, and the model to be tested for its steering capabilities in actual flight, and if desired also on the surface of the water.
7. All the models to be immersed (totally), so far as their floats are concerned, for a certain period to test the watertightness of the floats.

In addition to the above tests, extra marks to be awarded to all models fitted with wheels and showing themselves capable of rising off land as well as water; the wheels to be carried throughout all the tests, and to be capable of being raised or lowered at will.

It will be noticed the above tests do not include a flotation stability test save in so far as tests 4 and 5 are concerned; it introduces grave difficulties relative to the moment of inertia about the longitudinal axis, which must be taken into account in test 1; it could, of course, be overcome by means of *very light* balancers, which could be raised or lowered at will, and the point is without a doubt one that would bear further consideration.

The Trollope Competition for teams of two kites, with a minimum total of 80 ft., took place on Saturday, Aug 23rd, on Wimbledon Common, and attracted an entry of 10. The judges, Messrs. R. H. Lanchester, G. Rowlands and A. F. Houlberg, made the following awards:—

| Place. | Competitor. | Make. | Angle. | Stability. | Marks. | | | Total. |
|--------|---------------------------|--------------|--------|------------|-----------|-------------------|--|--------|
| | | | | | Strength. | Collapse-ability. | | |
| 1 | G. T. White (Brockley)... | White Patent | 99 | 95 | 92 | 95 | | 381 |
| 2 | A. W. Collins (Croydon) | Box and Wing | 90 | 90 | 83 | 85 | | 348 |
| 3 | T. Gregg (Wimbledon)... | Brookites | 87 | 91 | 78 | 90 | | 346 |
| 4 | H. Stewart (Wandsworth) | Rhombus | 84 | 85 | 73 | 100 | | 343 |
| 5 | H. W. Browne (Catford) | Browse | 76 | 90 | 80 | 95 | | 341 |

Mr. White therefore holds the handsome cup presented by the late president, Col. F. C. Trollope, and won the gold medal presented by Mrs. E. C. Trollope. Mr. A. W. Collins winning the silver medal presented by Mr. E. C. Trollope, and Mr. Gregg the bronze. Mrs. W. H. Akehurst, presented the prizes to the winners.

Baden-Powell Ornithopter Competition.—Although five entries were received no one turned out, therefore this competition had to be postponed, but it must be clearly understood that trade models cannot be copied, competing machines having to be original ideas. The date fixed for this event is Sept. 6th, prior to the Michelin Kite Contest. New entries will be received up to Sept. 3rd, but not after.

"Model Engineer" Exhibition.—At a meeting of the Secretaries' Guild it was decided that the provincial clubs entering as a team should not be compelled to send all their members to attend the flying tests, but that each club outside the London radius can nominate two members to attend and fly the club's machines. Competitors can only enter one machine in each class. A sub-committee of the secretaries to inspect the grounds round London was appointed, consisting of Messrs. F. Grattan (Leytonstone), H. G. Bond (N.E.L.), L. H. Slatter (Wimbledon), and the hon. sec. and secretary of the K. and M.A.A. Mr. R. M. Balston, Vice-President of the K. and M.A.A., is to be asked to be chairman of the grounds committee, to represent the Assoc. The committee will announce the date of the tests as early as possible. The secretaries have also nominated the following gentlemen to act as judges at this exhibition and flying tests, subject to their approval: Dr. Thurston, Professor J. T. Morris, Messrs. F. K. McClean, R. M. Balston, T. W. K. Clarke, H. F. Lloyd, C. R. Fairley, Lieut. T. O'B. Hubbard, and Col. J. D. Fullerton.

27, Victory Road, Wimbledon.

W. H. AKEHURST, Hon. Sec.

KITE AND MODEL AEROPLANE ASSOCIATION

Official Notices.

British Model Records.

| | | | |
|---|--------------|--------------------|------------------|
| Hand-launched ... | Distance ... | R. Lucas ... | 590 yards. |
| Off ground ... | Duration ... | L. H. Slatter ... | 111 secs. |
| Hydro, off water ... | Distance ... | L. H. Slatter ... | 365 yards. |
| Single-tractor screw, hand-launched ... | Duration ... | L. H. Slatter ... | 2 mins. 11 secs. |
| Do., off ground ... | Distance ... | L. H. Slatter ... | 45 secs. |
| | Duration ... | F. G. Hindsley ... | 173 yards. |
| | Distance ... | J. E. Louch ... | 68 secs. |
| | Duration ... | L. G. Tucker ... | 148 yards. |
| | Distance ... | J. E. Louch ... | 45 secs. |

Official Trials.—An application was received during the week for official observers to witness flights by Mr. L. H. Slatter. Messrs. A. F. Houlberg, Vincent Smith and the hon. sec. were the observers appointed, but another observer, Mr. C. C. Dutton, of the Paddington Club, also observed the flights. Mr. Slatter was out to show that his winning the Wakefield Gold Cup with his 8½ oz. model was no fluke, as generally supposed in the model world (his time being 135½ secs. out of sight in this contest). In the three trials allowed him on Wimbledon Common the results were: 1st flight, off path (no special rising surface), 110 secs.; 2nd flight, 131 secs. He did not take his 3rd flight, but went for hand-launched duration record with the same machine, with chassis on, in this he did 111 secs. in first flight, the others he did not wish to be taken, owing to the adverse conditions. The next trials take place to-day (Saturday, 30th), and as the hon. sec. is on holidays, anyone having sent in applications should turn up on the Aero Models Ground, East Finchley, at 3 p.m., the observers being Messrs. F. Hindsley and M. B. Ross, of Aero Models Assoc., and Mr. A. F. Houlberg, of K. and M.A.A., and Vincent Smith.

Model Competition to be held at the 100 Acre Field, Greenford, on Sept. 13th, at 3 o'clock. Entries close Sept. 6th. Longest flight and stability competition for models rising off the ground (open to the world). Free to members; non-members, entrance fee, 2s. 6d. Previous holders: C. R. Fairey, 1910; G. Rowlands, 1911; A. F. Houlberg, 1912. Prizes: 1st, the Association's Silver Challenge Cup and gold medal; 2nd, silver medal; 3rd, bronze medal. Tests: distance; stability. Maximum marks, 100—75 for distance, 25 for stability. Rules: 1. Competitors may submit aeroplane models of any kind. 2. Models must not weigh less than 4 ozs. 3. Competitors must be at the judges' flag at 2.45. Those not present at that time will be disqualified. 4. Stability, both longitudinal and lateral, will be noted by the judges and taken into consideration in their award. 5. Each competitor is entitled to three trials. 6. The length of flight will be measured in a straight line, from starting point to alighting point, and not along the line of flight.

AFFILIATED MODEL CLUBS DIARY.

CLUB reports of chief work done will be published monthly for the future. Secretaries' reports, to be included, must reach the Editor on the last Monday in each month.

Aero-Models Assoc. (N. Branch) (25, CHURCH CRESCENT, MUSWELL HILL, N.).

AUGUST 30TH, official record trials, first gate right hand side of Bishop's Avenue, near East Finchley Station, G.N.R. Sept. 6th, practice. Matches with the Hendon and North-East London Clubs are being arranged.

Bristol and West of England Aero Club (Model Section) (3, ROYAL YORK CRESCENT, CLIFTON, BRISTOL).

AUG. 30TH. As notified to members, Mr. Edgar's biplane glider will be tested at Oakham Farm, Portbury, 3.30 p.m., if there is a southerly wind. In case of uncertainty as to the weather, ring up the Clifton Down Hotel (Tel. 3111) any time after 12 noon.

Leytonstone and District Aero Club (64, LEYSPRING ROAD.)

AUG. 30TH, at 6.30 a.m., flying as usual near Model Yacht Pond, Wanstead Flats. At 10 a.m., timekeeper and judges will be out as usual to time flights in connection with the competition (near Brickfields).

Paddington and Districts (77, SWINDERBY ROAD, WEMBLEY).

AUG. 30TH, at Sudbury, r.o.g. handicap, any weight over 4 ozs.; two prizes. Sept. 6th, gold medal competition for 8 oz. models, rise off ground, duration; and prize, silver gilt medal; 3rd, silver medal; 4th, bronze medal.

Reigate, Redhill and District (THE COTTAGE, WOODLANDS AVENUE, REDHILL).

AUG. 30TH, flying on Earlswood Common.

Sheffield Aero Club (35, PENRHYN ROAD, SHEFFIELD).

AN r.o.g. contest will take place on Aug. 30th at the aerodrome, in view of raising the British distance record; commence at 3 p.m. prompt. Sept. 1st, 7.30 p.m. prompt, special meeting to consider the lowering of subscriptions. A challenge has been received from the Manchester Model Aero Club, which is expected to take place on Sept. 28th.

Wimbledon and District (165, HOLLAND ROAD, W.).

AUG. 30TH and 31st flying as usual.

UNAFFILIATED CLUBS.

Brighton and Hove (59, WESTBOURNE GARDENS, HOVE).

YEARLY subs. are now due. Please apply to hon. sec. at above address.

Scottish Ae.S. ("ROCHELLE," LIMESIDE AVENUE, RUTHERGLEN).

SEPT. 6TH, 13th and 27th, meeting at Maxwell Park, tractors, hydros, &c. Sept. 20th, hydro. competition at Maxwell Park. The attention of members is called to the hydro. competition on Sept. 20th, for which a silver medal is offered for the best duration off water.

S. Eastern Model Ae.C. (1, RAILWAY APPROACH, BROCKLEY).

AUG. 30TH, Kidbrooke, 2.30 to 5.30 p.m.; Woolwich Common, 4.30 to 6.30 p.m. Aug. 31st, Blackheath, 7.30 to 10 a.m.; Lee aerodrome, 10.30 a.m. to 12.30 p.m.

Windsor Model and Gliding Club (10, ALMA RD., WINDSOR).

—The club will be exhibiting at the "Model Engineer" exhibition, and some big models have already been started. To-day, a competition for tractor biplanes of over 8 ozs. will take place in the Home Park at 3.30 for the trophy. A fine turnout is promised. Enthusiasts in the locality are urged to join. The club would also like to see anyone keen on gliding at their workshops in Arthur Road.



CORRESPONDENCE.

"Are these Wing Spars Bending?"

[1780] In answer to your question re "Are these Wing Spars Bending?" as a constructor and photographer of several years' experience, I say they are bending. If it was the effect of the camera, both edges of planes would slope toward each other.

Romford.

GORDON SMITH.

Aerial Nomenclature.

[1781] With reference to the article in FLIGHT under the heading of "Aerial Nomenclature," which deals with the question of a suitable name for the water aeroplane, I should like to suggest the combination word "aquaplane" as being adequate.

Its derivation, aqua aero, deals equally with the duties of such a machine, and its pronunciation, ak-kwero, is not after all such a difficult mouthful to negotiate after two or three attempts.

Trusting that the above suggestion may meet with the requirements.

East Ham, E.

"AEROPEG."

Airship Services for England.

[1782] It has been brought to our notice that, as a result of the advance particulars recently published in the Press relating to the passenger airships service which we are organising in this country, attempts are being made to secure support for one or more schemes for building in England experimental airships of various designs, which it is suggested are those proposed to be employed in the passenger airships service referred to in the articles in question.

We shall be obliged if you will allow us to say that we are not interested in any experimental airship, and that we consider it of the greatest importance that the success of the first passenger airships in England should not be jeopardised by the employment of any design which has not already been fully tested in actual service. We

venture to emphasize this point because we think that public opinion of airships in general in this country has already been somewhat biased by the comparative want of success of such airships as have been used here, which want of success, we think, is entirely due to the lack of practical experience in construction and handling, which must naturally form the preliminary stages in perfecting any new design in a comparatively new branch of engineering.

The airships to be employed in the service which we are organising are being built by a firm of very great practical experience in airship construction, and of a design which has already passed through a prolonged series of successful flights, and will be in charge of thoroughly experienced pilots and navigators. Anything in the nature of experimental work will be rigorously excluded.

THE NATIONAL (PASSENGER AIRSHIPS) ASSOCIATION, LTD.,

39, Lombard Street,
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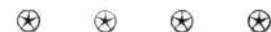


The Etrich "Taube" in Great Britain.

It is interesting to notice from an announcement in our advertisement pages that Herr Etrich is desirous of making arrangements with a British firm to build his machines in this country. Except for the machine on which Lieut. Bier started in the *Daily Mail* circuit in 1911, and the one purchased by the Admiralty, nothing has been seen of the machine over here, which is a little remarkable, considering the extraordinary way in which it has been exploited in Germany, and the success achieved in Austria.

A Chance for Inventors.

In these days when inventors are so busy inventing the impracticable and the useless to pester Admiralty officials with, it may be worth while to draw attention to a humbler field in which invention is very much needed. This is the discovery of some suitable substitute for steel wire for hydro-aeroplanes. Even something that would rust away in a leisurely fashion would be a discovery of very great value—steel wire rusts terribly quickly.—FRED T. JANE in the *Evening Standard*.



NEW COMPANIES REGISTERED.

Aerial Propulsion Synd., Ltd., 39, Victoria Street, Westminster.—Capital £1,000, in £1 shares (250 7 per cent. pref. shares). Principal object, to apply aerial propulsion to canal navigation. Directors, L. Blin Desbleds, F. S. Grogan, and Emile Pupin.

Beardmore-Austro-Daimler Aero Engine, Ltd.—Capital £1,000, in £1 shares.

Clarkson Aero Propeller Synd., Ltd.—Capital £450, in £1 shares. Under agreement with J. Clarkson. First directors, G. F. Calderwood, J. Morland, T. Cotton, J. Clarkson, Col. A. L. Mein, R. E., H. B. Sharp, and Lieut.-Col. R. E. Villamill, R.E.



Aeronautical Patents Published.

Applied for in 1912.

Published August 21st, 1913.

17,649. G. STURGESS AND R. PLATTS. Aeroplanes.
18,166. H. E. S. HOLT. Military aircraft.
24,822. H. T. WRIGHT. Planes of flying-machines.

Applied for in 1913.

Published August 21st, 1913.

12,572. F. VON SCHLEINITZ. Landing or berthing of airships.

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